HCE7 series

XP Power

7W Eurocassette

AC-HVDC power supplies

The HCE7 series power supplies are highly stable switch-mode power supplies with low ripple.

Due to the high switching frequency a low residual ripple is achieved in the generated output voltage, with high stability, good regulation dynamics, and at the same time only a low amount of stored energy.

The compact light weight eurocasette design provides ease of integrationg via a 3U subrack (19" mounting).

Features

- 0-125V to 0-35kV output models
- Single phase AC input
- Continuous operation at full rated power
- Unlimited operation with rated current in a short-circuit condition
- Screwdriver operated multi-turn potentiometer for voltage setting
- Screwdriver operated multi-turn potentiometer for current limit setting
- Control mode display with LED's
- Constant voltage (CV) or constant current (CC) operation with automatic transfer
- Analog programming/interface with set point inputs
- HV on/off
- Front panel output sockets for voltage & current monitors
- Short circuit & arc protection
- 2 year warranty

Applications

- Capacitor / Insulation testing
- Electrostatics
- High voltage test stands
- Ion sources
- Laboratory power
- Photomultiplier / Secondary electron multiplier

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 bespoke terminal software gives greater flexibility
- Special solutions are available, visit our **more resources** section to see full our range of options

Dimensions

Click the link to the dimensions table

⟶ **mechanical details**

More resources

Click the link or scan the code

⟶ **xppower.com**

HCE7 series

Models & ratings

Model number	Polarity	Output voltage	Output current	Input voltage	Frequency	Connector	HV-cable
HCE0.1P050	Positive	0 to +125V	0 to 50mA	230VAC, ±10%	47 to 63Hz	/	/
HCE0.1N050	Negative	0 to -125V					
HCE0.2P025	Positive	0 to +200V	0 to 25mA	230VAC, ±10%	47 to 63Hz		
HCE0.2N025	Negative	0 to -200V					
HCE0.3P015	Positive	0 to +350V	0 to 15mA	230VAC, ±10%	47 to 63Hz		
HCE0.3N015	Negative	0 to -350V					
HCE0.6P010	Positive	0 to +650V	0 to 10mA	230VAC, ±10%	47 to 63Hz		
HCE0.6N010	Negative	0 to -650V					
HCE1.2P005	Positive	0 to +1.25kV	0 to 5mA	230VAC, ±10%	47 to 63Hz	SHV-10	RG 58
HCE1.2N005	Negative	0 to -1.25kV					
HCE002P003	Positive	0 to +2kV	0 to 3mA	230VAC, ±10%	47 to 63Hz		
HCE002N003	Negative	0 to -2kV					
HCE3.5P002	Positive	0 to +3.5kV	0 to 2mA	230VAC, ±10%	47 to 63Hz		
HCE3.5N002	Negative	0 to -3.5kV					
HCE6.5P001	Positive	0 to +6.5kV	0 to 1mA	230VAC, ±10%	47 to 63Hz		
HCE6.5N001	Negative	0 to -6.5kV					
HCE012P0.5	Positive	0 to +12.5kV	0 to 0.5mA	230VAC, ±10%	47 to 63Hz	F3415	130 660
HCE012N0.5	Negative	0 to -12.5kV					
HCE020P0.3	Positive	0 to +20kV	0 to 0.3mA	230VAC, ±10%	47 to 63Hz	HS 21	130 660
HCE020N0.3	Negative	0 to -20kV					
HCE035P0.2	Positive	0 to +35kV	0 to 0.2mA	230VAC, ±10%	47 to 63Hz	F 3430	RG 11
HCE035N0.2	Negative	0 to -35kV					

Notes:

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

Options

- Lockable 10-turn potentiometers for voltage adjustment
- Digital programming interface in an external Eurocassette

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

Digital programming & interfaces

⟶ view options

Or consult XP Power Sales directly.

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 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 screwdriver operated multi-turn potentiometer.
Output polarity	The power supply has a fixed output polarity. The polarity is set by the factory and is indicated by a sticker on the front and rear panel. (Positive - red; negative - blue).
Output isolation	The output connector centre pole carries the high voltage, the “0V“ terminal of the output is connected to earth but may be disconnected as needed. When disconnected, the “0V“ (earth) terminal may float with respect to earth up to ±125V. Current return preferably takes place via the screen of the output cable.
HV output connection	Up to 650VDC: Safety laboratory sockets SLB 4-G KAT III; ≥1.25kVDC: The sockets are intended for a shielded output cable with earthed shielding. Mating HV connectors and 3m cable are supplied.
Voltage control	<1ms with load changes from 10% to 100% or 100% to 10%, respectively
Voltage setting range	Using the VOLTAGE potentiometer, approximately. 0.1% to 100% of the rated value
Current limitation	<10ms with load changes that effect a change of less than 10% in the output voltage
Current limit setting range	Using the CURRENT potentiometer, approximately 0.1% to 100% of the rated value
Setting time at rated load	Typical 500ms, depending on type, for changes in the output voltage from 10 to 90% or 90 to 10%, respectively
Set point resolution	±1x10-3 of the rated value with the potentiometer on the front panel With interface 16-bit resolution including sign bit (maximum 22bit)
Discharge time constant	With output free of load, maximum 10s
Reproducibility	±1 x 10^{-4} of rated value
Residual ripple voltage	<1 x 10^{-4}pp, +50mV of the rated value, typ. <5 x 10^{-5}pp (measuring band width 30Hz to 10MHz) RMS <3 x 10^{-5}, +20mV of the rated value, typ. <1.5 x 10^{-5}
Residual ripple current	<5 x 10^{-4}pp, +50mV of the rated value (measuring band width 30Hz to 10MHz)
Control deviation	±10% mains voltage variation: <±1 x 10^{-5} of the rated value Open circuit / full load: 2 x 10^{-4} of the rated value Over 8 hours: <±1 x 10^{-4} of the rated value Temperature deviations <±1.5 x 10^{-4}/K of the rated value
Short circuit protection	The power supply is short-circuit and flash-over proof. The maximum current can be drawn at any output voltage, even in the event of a short-circuit.

Signals & controls

	Function
Front panel	Power switch, LEDs´ for status messages, Voltage and current potentiometer, Measuring sockets for voltage and current monitors.
Operating modes	The HV output’s polarity is positive or negative (see models & ratings table). The power supplies can be operated in internal & external operating modes.

Environmental

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

EMC: 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 approvals

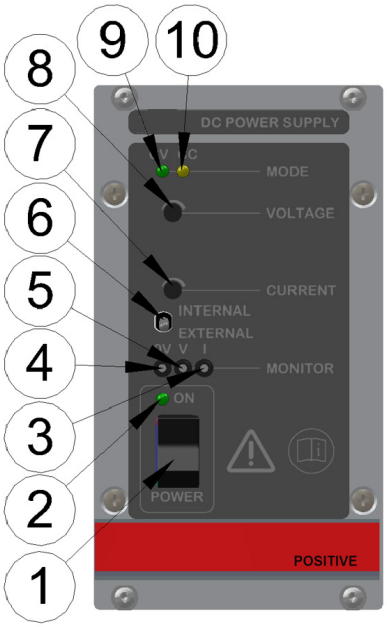
Safety agency	Safety standard	Notes & conditions
EN	EN61010-1	
CE	Meets all applicable directives	

Mechanical details

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

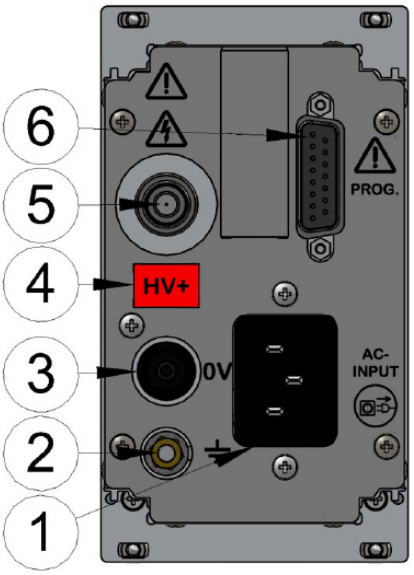
Front view with controls of the 7W versions

Number	Function
1	POWER switch (AC) with indicator light. Disconnects the power supply from the mains, two-pole switching.
2	ON LED illuminated green when Power ON.
3	I MONITOR measuring socket for output current value, 0 to +10 V corresponds to 0 to I Rated Internal resistance approx. 10 kOhm
4	0 V MONITOR measuring socket voltage reference of the monitors, must not be under current load.
5	V MONITOR measuring socket for output voltage value, 0 to +10 V corresponds to 0 to U Rated Internal resistance approx. 10 kOhm
6	INTERNAL/EXTERNAL toggle switch (programming switch) between internal and external operation.
7	CURRENT potientiometer setting with a screwdriver.
8	VOLTAGE potientiometer setting with a screwdriver.
9	CV MODE LED illuminated green for Constant Voltage control mode.
10	CC MODE LED illuminated yellow for Constant Current limitation.



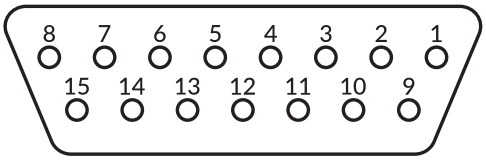
Rear view with single phase AC input of the 7W versions

Number	Function
1	AC input IEC 603020-1 C14 connector (as illustrated).
2	Earth bolt: This connection is provided for connecting to the ground of the load.
3	0V load connection, internally connected to the 0V of the electronics. This 0V connection is permanently connected to the protective conductor (PE).
4	Polarity indication RED: POSITIVE. BLUE: NEGATIVE
5	HV Output up to 650VDC: laboratory safety socket SLB 4-G KAT III ≥1.25kVDC: Designed for screened output cable with grounded screen.
6	15-pin Sub-D connector for analog programming, active with EXTERNAL switch position. (front panel)



Mechanical details

Overview of the analog programming/interface



Number	Idenification	Type	Function
1	CC	Digital output	Supplies approximately +15V, if device is in constant current control corresponds to CC LED Ri approximately 10kΩ
2	CV	Digital output	Supplies approximately +15V, if device is in constant voltage control corresponds to CV LED Ri approximately 10kΩ
3	I-MON	Analog output	Monitor voltage of the output current 0 to10V corresponds to 0 to I_{Rated} Ri approximately 10kΩ
4	VPS	Analog output	Slave drive of the voltage potentiometer on the front panel 0 to +10V for 0 to U_{Rated} Ri approximately 10kΩ
5	IPS	Analog output	Slave drive of the current potentiometer on the front panel 0 to +10V for 0 to I_{Rated} Ri approximately 10kΩ
6	0VD	D-GND	Digital ground, may be under current load
7	Not connected	Not connected	Not connected
8	V-SET	Analog input	0 to +10V corresponds to 0 to U_{Rated} Ri toward 0V approximately 10MΩ
9	0V	A-GND	Reference for analog signals, must not be under current load
10	+10VREF	Analog output	+10V reference voltage, can tolerate loads up to maximum 3mA
11	V-MON	Analog output	Measuring value of the current output voltage Analog output, 0 to +10V corresponds to 0 to U_{Rated} Ri approximately 10kΩ
12	OUTPUT ON	Digital input	Pin (12) open OUTPUT = OFF, Pin (12) connected to 0VD Pin (6) = OUTPUT ON
13	Not connected	Not connected	Not connected
14	Not connected	Not connected	Not connected
15	I-SET	Analog input	0 to +10V corresponds to 0 to I_{Rated} Ri toward 0V approximately 10MΩ

Mechanical details

Model number	Mounting	Width		Height		Depth	Weight[1]
HCE0.1P050	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE0.1N050	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE0.2P025	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE0.2N025	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE0.3P015	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE0.3N015	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE0.6P010	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE0.6N010	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE1.2P005	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE1.2N005	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE002P003	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE002N003	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE3.5P002	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE3.5N002	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.2kg
HCE6.5P001	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.3kg
HCE6.5N001	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.3kg
HCE012P0.5	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.3kg
HCE012N0.5	19” Subrack mount	14HP	71mm	3U	133mm	170mm	1.3kg
HCE020P0.3	19” Subrack mount	21HP	107mm	3U	133mm	170mm	2.3kg
HCE020N0.3	19” Subrack mount	21HP	107mm	3U	133mm	170mm	2.3kg
HCE035P0.2	19” Subrack mount	28HP	142mm	3U	133mm	170mm	2.5kg
HCE035N0.2	19” Subrack mount	28HP	142mm	3U	133mm	170mm	2.5kg

Notes:

1. All weights are approximate.