



## DC High Voltage Capacitor Charging Power Supplies 750J/s to 4kJ/s CCR Series From 300V to over 200kV output voltage



**CCR 10kV-10kJ**  
0 to 10 kV, 0 to 2A

*Non-contractual photo*

### Main information

- Compact & industrial design
- Voltage & Current Outputs continuously adjustable from 0 to full scale
- Voltage & current setting & monitoring from front panel or remote interface
- Voltage setting limitation (locally)
- High reliability & efficiency
- High precision regulation
- Total protection against arc, overload, short circuit & over temperature
- End of charge signal
- Remote, inhibit & interlock functions
- 4 ½ digit display with polarity display
- Fans regulation on 5 kJ/s models
- Easy parallel operation (option)
- Double resonance technology (ZVC)
- Safety switch key
- 2 years warranty

\* You can choose your own full scales (Vmax and Imax) even if these values are not available in standard. For example, you can get a 45kV generator based on 3kJ/s model. In this case, you will get an Output Voltage adjustable from 0 to 45kV and Output Current from 0 to 133 mA.

### Description

High Voltage CCR models are designed to charge capacitors pulse forming networks (PFN) and Marx generators. They operate as constant current sources.

As they integrate both double resonant technology and efficient components, they offer high reliability and performance.

These units integrate local and remote programming and monitoring, safety interlock, short circuit and overload protection like in all our products.

All the models are air cooled and their presentation can be either 19" racks (5U or 7U) or 19" cabinet with lifting rings and wheels.

Five ranges of charge rates available from 750J/s to 4kJ/s.

Designed to operate without damage or interruption in rugged environments, they support an intensive use 24 hours per day, 7 days per week.

HV block can operate in the air up to 20kV models. It is immersed in an oil tank for models above 20kV.





## Electrical specifications

### Output Voltage and output Current

Both Voltage Output and Current Output are continuously adjustable from 0 to 100 % (full scale)

**Local mode:** with 10 turns potentiometers *resolution 0.05%*

**Remote mode:** by an external 0 to 10 V

### Maximum frequency

In standard : **10 Hz**

On request : **up to 1 kHz** depending on the application\*

### Reproducibility\* (pulse to pulse voltage variation)

For frequencies  $\leq 10$  Hz :  $\pm 0.05\%$  *better on request*

For  $\pm 10\%$  mains voltage :  $\pm 0.05\%$

**Voltage holding:** **0.1% p-p** (*better on request*)

**Stored energy:** **0.2J/kJ**

### Protections

Against short circuit

HV arc to ground

Shutdown on Over temperature

Open interlock

### Warm up shift of voltage (after one hour warm-up)

**0.01 % / hour**, operating at constant load and ambient temperature

**Temperature coefficient:** **100 ppm/°C**

**Operating temperature:** from **0 to 50°C**

**Efficiency:** **> 90 % at full load**

### Air cooling by air

Dust filter fans on front panel

Easily removable filters for cleaning

### Mains voltage

**400 VAC  $\pm 10\%$**  47-63 Hz 3 Phase + Earth

**Power Factor:**  $\geq 0.9$  at full load

**Inrush current:** limited to full power operating current

**Calibration:** with probes periodically approved by Authorized Measurement Laboratories

**CE Certification**

\* For fixed polarity

## Options

- ✓ Other voltage and current values available with no extra cost
- ✓ Easy parallel operation (For frequencies  $\leq 10$  Hz)
- ✓ Reversibility
- ✓ Floating outputs (unipolar or bipolar)
- ✓ Non instrumented front panel
- ✓ Automatic inhibit when discharging
- ✓ RS232, Ethernet and Profibus interfaces
- ✓ Optical fibre transmission kit with RS232 or Ethernet
- ✓ LABVIEW run time for RS232 or Ethernet
- ✓ Relay interface 24V DC
- ✓ Isolated Remote interface
- ✓ Adaptation customer to remote interface
- ✓ Emergency stop switch
- ✓ Safety signs and devices alerting to hazard
- ✓ Industrial dust filters
- ✓ Repetition frequency  $> 10$ Hz : no extra cost
- ✓ Multichannel control unit
- ✓ Zero floating
- ✓ Tropicalization
- ✓ Transportable "all terrain" container
- ✓ Specific AC or DC mains power inputs
- ✓ OEM Design on request
- ✓ Remote front panel

*Any special requests can be considered*

Possible restrictions when multiple options (please contact our sales department for more details)

**Our chargers are designed to be used in standard under the following conditions :**

- Complete discharge
- Max. frequency : 10 Hz
- Capacitor Load
- Reversal Voltage  $\leq 10\%$  of  $V_{max}$  for a charging time between 0.1s and 5s

If the charger is used in other conditions, please fill in our charger form.



## Physical description

Non-contractual photo



	3U – 19" Rack	5U – 19" Rack	7U–19" Rack	19" Cabinet
Dimensions	H1133xW483xD480 mm	H222xW483xD480 mm	H311xW483xD600 mm	Height : from 12 to 30 HU
	H1133xW483xD600 mm	H222xW483xD600 mm		Depth : 800 mm

Voltage	CCR 750J/s Series		CCR 1.5kJ/s Series		CCR 2.5kJ/s Series		CCR 3kJ/s Series		CCR 4kJ/s Series	
	Current	Model	Current	Model	Current	Model	Current	Model	Current	Model
< 1kV	CONTACT US									
1 kV	1.5 A	CCR1KV-750J	3.00 A	CCR1KV-1.5KJ	5.00 A	CCR1KV-2.5KJ	6.00 A	CCR1KV-3KJ	8.00 A	CCR1KV-4KJ
2.5 kV	600 mA	CCR2.5KV-750J	1.20 A	CCR2.5KV-1.5KJ	2.00 A	CCR2.5KV-2.5KJ	2.40 A	CCR2.5KV-3KJ	3.20 A	CCR2.5KV-4KJ
5 kV	300 mA	CCR5KV-750J	600 mA	CCR5KV-1.5KJ	1.00 A	CCR5KV-2.5KJ	1.20 A	CCR5KV-3KJ	1.60 A	CCR5KV-4KJ
10 kV	150 mA	CCR10KV-750J	300 mA	CCR10KV-1.5KJ	500 mA	CCR10KV-2.5KJ	600 mA	CCR10KV-3KJ	800 mA	CCR10KV-4KJ
15 kV	100 mA	CCR15KV-750J	200 mA	CCR15KV-1.5KJ	330 mA	CCR15KV-2.5KJ	400 mA	CCR15KV-3KJ	530 mA	CCR15KV-4KJ
20 kV	75 mA	CCR20KV-750J	150 mA	CCR20KV-1.5KJ	250 mA	CCR20KV-2.5KJ	300 mA	CCR20KV-3KJ	400 mA	CCR20KV-4KJ
25 kV	60 mA	CCR25KV-750J	120 mA	CCR25KV-1.5KJ	200 mA	CCR25KV-2.5KJ	240 mA	CCR25KV-3KJ	360 mA	CCR25KV-4KJ
30 kV	50 mA	CCR30KV-750J	100 mA	CCR30KV-1.5KJ	170 mA	CCR30KV-2.5KJ	200 mA	CCR30KV-3KJ	270 mA	CCR30KV-4KJ
40 kV	37.5 mA	CCR40KV-750J	75 mA	CCR40KV-1.5KJ	130 mA	CCR40KV-2.5KJ	150 mA	CCR40KV-3KJ	200 mA	CCR40KV-4KJ
50 kV	30 mA	CCR50KV-750J	60 mA	CCR50KV-1.5KJ	100 mA	CCR50KV-2.5KJ	120 mA	CCR50KV-3KJ	160 mA	CCR50KV-4KJ
60 kV	25 mA	CCR60KV-750J	50 mA	CCR60KV-1.5KJ	80 mA	CCR60KV-2.5KJ	100 mA	CCR60KV-3KJ	130 mA	CCR60KV-4KJ
80 kV	18.7 mA	CCR80KV-750J	37.5 mA	CCR80KV-1.5KJ	60 mA	CCR80KV-2.5KJ	80 mA	CCR80KV-3KJ	100 mA	CCR80KV-4KJ
100 kV	CONTACT US				50 mA	CCR100KV-2.5KJ	60 mA	CCR100KV-3KJ	80 mA	CCR100KV-4KJ
120 kV					40 mA	CCR120KV-2.5KJ	50 mA	CCR120KV-3KJ	70 mA	CCR120KV-4KJ
150 kV	CONTACT US									
200 kV	CONTACT US									
> 200 kV	CONTACT US									

**Polarity** can be positive, negative, reversible (option) or floating (option)  
 Floating or reversibility options can modify the size of the unit

### Example of reference : CCR 80KV- 3KJ

Mode : CCR model (capacitor charger)  
 Voltage : Adjustable from 0 to 80 kV  
 J/s : 3 kJ/s charging power

HV connectors and cables available



All our generators are delivered with :

**HV output:**  
 HV connector and 3 meters HV cable

**Mains input:**  
 3U rack: 4 pins connector  
 Other racks: 4 pins feed-through terminal