

## 50kW FULL RACK

### AC-HVDC POWER SUPPLIES

The HYN50K0 uses a phase controlled thyristor rectifier circuit to transform the mains supply to high voltage, a series LC filter is used to smooth the resulting rectified voltage.

All racks are equipped with fork-lift-compatible plinths and removable lifting-eyes. The side covers are detachable, the rear door is lockable. Cooling is carried out via convection or built-in fans, with the air being exhausted (depending upon type) either via the rear or the top.



### Dimensions

See mechanical details table

### Features

- Extremely robust
- High efficiency
- Short circuit proof and unlimited operation with full current in short circuit condition
- Voltage and current regulation with automatic and fast transition; control mode indicated by LEDs
- Voltage and current setting with 10-turn potentiometers with precision scale; the adjusting knob can be locked
- Limitation of inrush current on switching on
- Suitable also for inductive and capacitive loads
- Interlock loop to monitor the external load and internal loop as a standard
- Elapsed hour meter as a standard

### Benefits

- Provides maximum control & flexibility.
- Safe operation ensures maximum protection to the power supply
- User friendly controls

### Applications

- E-beam & ion beam generation
- E-beam welding
- Electron lithography
- Electron microscopy
- Electron tube manufacturing equipment
- Electron tube testing
- Electrostatic charge generation
- Mass spectrometry
- Semiconductor manufacturing equipment
- Semiconductor testing

## Models & Ratings

Model Number	Polarity	Output Voltage	Output Current	Input Voltage	Frequency
HYN50K0-12500P	Positive	0 to +12.5kV	0 to 4A	400VAC $\pm 10\%$ 3 phase	47 to 63Hz
HYN50K0-12500N	Negative	0 to -12.5kV	0 to 4A	400VAC $\pm 10\%$ 3 phase	47 to 63Hz
HYN50K0-12500R	Reversible	0 to 12.5kV	0 to 4A	400VAC $\pm 10\%$ 3 phase	47 to 63Hz
HYN50K0-20000P	Positive	0 to +20kV	0 to 2.5A	400VAC $\pm 10\%$ 3 phase	47 to 63Hz
HYN50K0-20000N	Negative	0 to -20kV	0 to 2.5A	400VAC $\pm 10\%$ 3 phase	47 to 63Hz
HYN50K0-20000R	Reversible	0 to 20kV	0 to 2.5A	400VAC $\pm 10\%$ 3 phase	47 to 63Hz

## Options

- Analog programming (one of the outputs on "0V" - potential)
- Analog programming, floating
- Computer interfaces - IEEE 488, RS 232, RS 422, Profibus DP, USB, LAN (more on request)
- Polarity reversal switch. Please specify the output polarity, when ordering without polarity reversal switch.
- Internal resistance setting and regulation
- Power regulation with display
- Heavy duty castors for rack unit

More options and special solutions on request. Some options may involve changes to the description of the unit especially concerning the mechanical design.

## Input

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Input Voltage	See models and ratings table				
Inrush Current Limiting					As standard
Efficiency		90		%	

## Output

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Output Voltage Range	See models and ratings table				
Output Current Range	See models and ratings table				
Output Control	Voltage and current setting with 10-turn potentiometers with precision scale; the adjusting knob can be locked				
Output Polarity	See models and ratings table				
Output Isolation	±2kV against earth. Exception: Not valid with the option analog programming				
HV Output Connection	Mating HV connector supplied on all models				
Voltage Setting Range	Using the VOLTAGE potentiometer, approx. 1% to 100% of the rated value				
Current Setting Range	Using the CURRENT potentiometer, approx. 1% to 100% of the rated value				
Setting Time at Nominal Load	<100ms to 2s, depending on type, for changes in the output voltage from 10% to 90% or 90 to 10%, respectively				
Setting Resolution	±1 x 10 <sup>-4</sup> of rated value with potentiometer on front panel				
Discharge Time Constant	With output free of load. The discharge time can be between 5s and 60s, depending on type				
Residual Ripple	<1 x 10 <sup>-2</sup> of rated value +100mVpp (measuring bandwidth 0Hz - 10MHz)				
Recovery Time	<100ms to 500ms, depending on type, for load variations of ±10%				
Control Deviation	±10% mains voltage variation: <±1 x 10 <sup>-4</sup> of the rated value 0 to 100% load change: <±1 x 10 <sup>-3</sup> of the rated value Over 8 hours: <±3 x 10 <sup>-4</sup> of the rated value Temperature deviations <±3 x 10 <sup>-4</sup> /K of the rated value				
Short Circuit Protection	The power supply is short circuit proof. The maximum current can be drawn at any output voltage, even in the event of a short circuit.				
Interlock Loop	Monitors the external load and internal loop as standard				
Elapsed Hour Meter	As standard				

## Environmental

Characteristic	Minimum	Typical	Maximum	Units	Notes & Conditions
Temperature Operation	0		+40	°C	
Storage Temperature	-20		+50	°C	
Temperature Coefficient		±0.1		°C	
Humidity Operating	0		+80	%	Up to +31°C, decreasing linearly down to 50% relative humidity at +40°C
Storage Humidity			+80	%	No precipitation
Cooling	Heat generated in the power supply unit is dissipated by convection or, in the case of high-power units, by forced ventilation				
Operating Altitude			2000	m	Above sea level

## Signals & Controls

	Function
Front panel	Voltage and current encoders, power switch, OUTPUT ON/OFF switch
Operating Modes	The output's polarity is isolated (see models & ratings table). The power supplies can be operated in the LOCAL, ANALOG (optional) and DIGITAL (optional) operating modes.
LEDs	Control mode indication

## EMC: Emissions

Phenomenon	Standard	Notes & Conditions
Harmonic Currents	EN61000-6-2	
Voltage Flicker	EN61000-6-3	

## Safety Approvals

Safety Agency	Safety Standard	Notes & Conditions
EN	EN61010-1	
CE	Meets all applicable directives	
UKCA	Meets all applicable legislation	

## Mechanical Details

Model Number	Mounting	Width		Height		Depth	Weight
HYN50K0-12500P	Full rack	2 x 19"	1200mm	38U	2000mm	800mm	1200kg
HYN50K0-12500N	Full rack	2 x 19"	1200mm	38U	2000mm	800mm	1200kg
HYN50K0-12500R	Full rack	2 x 19"	1200mm	38U	2000mm	800mm	1200kg
HYN50K0-20000P	Full rack	2 x 19"	1200mm	38U	2000mm	800mm	1200kg
HYN50K0-20000N	Full rack	2 x 19"	1200mm	38U	2000mm	800mm	1200kg
HYN50K0-20000R	Full rack	2 x 19"	1200mm	38U	2000mm	800mm	1200kg

### Connections

#### Mating Connectors

Mating high voltage connectors are included.