

HDPS SERIES

HIGH DYNAMICS POWER SUPPLY

Experiments and research upon the nuclear fusion makes large use of coils for the confinement and control of plasma.

The drives that supply current to those coil must join together high precision and optimal dynamic behavior with response times up to 12 μ s and set achievement times up to 30 μ s.

EEL power supply can be provided in a cabinet or 19-inch rack architecture solution, according to performance and customer requests.

MAIN APPLICATIONS

- RFX Padua experiment
- JT-60SA experiment

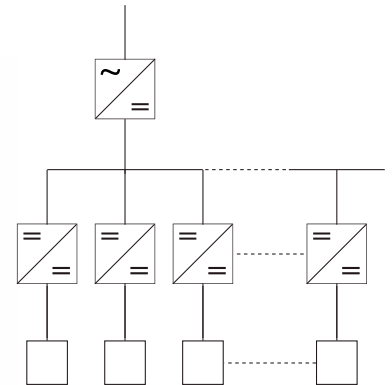
EEL power supply belonging to EEL-HDPS series are provided in a complete solution, inclusive of all electromechanical components for protection and disconnection.

Command and control of DC/DC units is made through DSP with signal transmission over fiber optic, in order to achieve the level of coordination among the units that is necessary in this type of application.

Cabinets of EEL-HDPS converter includes the capacitive banks that is needed to support effectively the drives during system functioning.

OPTIONS

- Active Front End/ Diode-Thyristorbridge rectifier
- Multipulse input
- Dynamic breaking module
- Increased DC-link capacitor bank size
- Output crowbar
- Earth fault detection circuit
- Customer regulation boards
- Customer transducers
- Local/remote control





MODEL

EEI - HDPS

MAIN PARAMETERS

Nominal output current	upon Customer Specifications
Nominal output voltage	upon Customer Specifications
Nominal output power	upon Customer Specifications
Number of DC/DC units	upon Customer Specifications
Line input voltage	400 +/-10% /3p; 47...63Hz (other on request)
Power factor (with output power >20%)	≥ 90%
Minimum efficiency (Inom, 50% output power)	≥ 85%
DC output voltage resolution	< 1%
Small signal voltage control bandwidth (-3dB)	> 20 kHz
Response time	< 12,μs
Rise Time	< 30μs

MECHANICAL DATA

INCOMING LINE / AC/DC UNIT

DC/DC CONVERTER

Technology	SCR rectifying bridge - IGBT Regenerative inverter	IGBT converter
Architecture	Cabinet	Cabinet / 19"rack
Dimensions (LxDxH)	upon customer specifications	upon customer specifications
Cooling	Air or water cooling	Air or water cooling
Acoustic noise at 1m	< 65 dBa	< 65 dBa
Ambient temperature	0 - 40°C	0 - 40°C

INTERFACE AND REGULATION

Regulation mode	CC or CV mode, selectable
Displays	Touch-panel HMI; LED indications for failures
Interface analog	Analog interface for current & voltage measuring and setting
Interface digital	Digital interface for current & voltage measuring and setting, output ON/OFF with status;
Ramp function	indication and reset of alarms; polarity indication
DAC resolution	Programmable di/dt ramp function
ADC resolution	16 bit
	16 bit

OPERATION AND MAINTENANCE

Total number of cycles	> 10 ⁸
MTBF	> 50000 h
MTTR	< 4 h
MTTR (semiconductors and capacitors)	< 1 h