

— IGBT chopper rectifier

PureDCH IGBT chopper rectifier

Advanced DC power supply for green hydrogen electrolyzers, using module technology by AEG PS, Germany.

50–1000 V · 3200 A per module

Up to 8 units in parallel

Peak efficiency 98.5%



3200 A

max. current per module

50–1000 V

output voltage range

>0.96

power factor

<3 %

THDi at rated point

— Overview

Stable, clean DC for demanding processes

PureDCH meets the most stringent power supply requirements of demanding industrial processes: perfectly stable output voltage for the best current quality, with high efficiency.

Its power draw stays as close as possible to a sine wave, with a consistently high power factor. It is built on a proven half-controlled B6/12 diode rectifier with polarisation and advanced IGBT chopper technology.

With an output voltage range of 50 V to 1000 V and up to 3200 A per module, PureDCH scales easily: up to 8 units connect into a single power block. It meets grid connection standards without extra power factor correction or harmonic filters, cutting installation and running costs.

— Benefits

- ✓ Highly reliable process power with high efficiency
- ✓ Low total cost of ownership
- ✓ Wide operating voltage range with hybrid diode and IGBT technology
- ✓ Integrated safety circuit up to SIL3 for safe shutdown (to EN 61508)
- ✓ Integrated polarisation rectifier protects the electrolyser against cell damage

— Features

- ✓ High-quality, dynamic DC supply
- ✓ High efficiency (99% peak, depending on point of operation)
- ✓ High power factor (>0.96)
- ✓ Low THDi of <3%
- ✓ Project-specific parameter optimisation possible
- ✓ Modular design for multi-MW installations
- ✓ Independent module operation with n+x redundancy

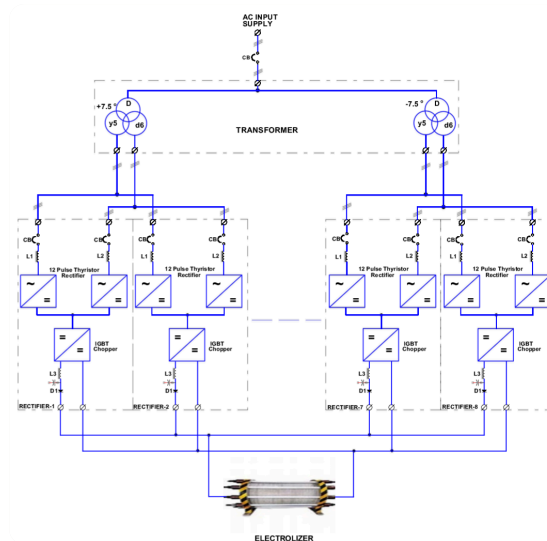
High efficiency at every load

Eco mode for efficient partial-load operation, lower OPEX through reduced energy losses, and optimal utilisation by combining Eco mode and Equipment Care mode.

- ✓ High dynamics to supply different types of applications
- ✓ High-quality DC output extends electrolyser life
- ✓ Compact footprint and low cabinet depth for easy container integration
- ✓ Fully grid compliant without costly filters: lower CAPEX and OPEX

Technical specifications

	Value
Input	
Input AC voltage	0.4–35 kV
System transformer	Customised
Auxiliary input	230 V AC, 50/60 Hz
Power factor	>0.96 on system level
THDi	<3% at rated point of operation; compliant with IEC 61000, IEEE 519-2022 and VDE-AR-N 4110
Output	
Min. load voltage	50 V DC
Max. load, single unit	600 V / 3200 A / 1.92 MW
Max. load, parallel operation	600 V / 25600 A / 15.3 MW
Current ripple	<3%
Efficiency (peak)	98.5%
Topology	6/12/24 pulse
Configuration	
AC cable / DC output / water inlet	From bottom / bottom or top / bottom
Dimensions without connectors (W x D x H)	1500 x 800 x 2200 mm
Weight	1300 kg
Environment and protection	
Inlet temperature of cooling fluid / air	<40 °C
IP protection degree	Up to IP54
Controls, communication and standards	
Digital voltage / current / power control	Yes / yes / yes
Communication (to customer requirements)	Profibus, PROFINET, Modbus TCP/IP
Conformity / EMC	EN 62477, EN 60146 / EN 61000
Functional safety	Up to SIL3 to EN 61508



Single-line diagram: transformer, 12-pulse thyristor rectifiers and IGBT choppers feeding the electrolyser.

Scalable solutions



Up to 2 MW rectifier module

A base frame for two PureDCH systems raises power density and cuts handling and installation costs on site.



Up to 4 MW power frame

Two modules on one base frame with prewired AC paralleling, a decoupling choke and optional fuse switches; forklift handling.



Up to 15 MW power block

Four power frames form a 15 MW block, with transformer, busbar, cooling, outdoor solution and AC LV distribution.