

POWER CONVERSION SYSTEMS FOR HYDROGEN PRODUCTION



OVERVIEW

Hydrogen as a kind of Energy Storage Energy storage by Hydrogen production through electrolysis process, offer a promising synergy with non predictable energy source (renewable energy as solar, wind etc.)

Hydrogen as a fully Green Energy Vector

Hydrogen is 100% Green compliance

- No need for waste disposal
- No pollution due to its use (no greenhouse gases)

TECHNOLOGY

Power rate from 1 to 3 MW with high power density for large scale production

Modular PCS with Insulated Gate Bipolar Transistors (IGBT) and low harmonics content.

Scalable rectifier for all the environment conditions.

CE compliance.

APPLICATIONS

- Automotive
- Refuelling station
- Power to Gas Energy Storage Converting surplus renewable energy into hydrogen gas by rapid response electrolysis and its subsequent injection into the gas distribution network
- Fuel cell for electricity generation
- Renewable Chemistry
- H2 as fundamental chemical block for a variety of commodity chemicals and fuels (ammonia, synthetic methane etc.)
- Thermal power generation
- Steam turbine



ENVIRONMENTAL CONDITIONS

Installation	Outdoor
Storage Temperature	-20 °C to +55 °C
Operational Temperature	-20 °C to +55 °C ⁽¹⁾
Relative Humidity	< 95% (not condensing)
Altitude above the sea level	< 1.000 m
IP Rating	IP54 / IP65
Cooling	Air / Water

INPUT ELECTRICAL DATA

Input Frequency	50/60 Hz
Input Voltage	200 to 900 V
Auxiliary Voltage	400 V
Power factor	>0,99
THDi	<2% ⁽²⁾

OUTPUT ELECTRICAL DATA

Voltage range	From 300 to 1500 Vdc
Max. Current	2000A
Current Ripple	<2 % ⁽³⁾
Max Efficiency	98,6 %

DIMENSIONS AND CHARACTERISTICS

Mechanical configuration	Outdoor Enclosure
L x P x H (mm)	3150 x 1100 x 2300 mm
Mass (kg)	3200 kg

CONTROLS

Voltage	Digital Limit control
Current	Digital control
Communication	Modbus TCP, Profinet, Ethernet IP

⁽¹⁾ Derating for temperature > 40°C for IP54 version

⁽²⁾ Considering upstream grid Psc =250 MVA and referred to PCU Nominal Power

⁽³⁾ Considering current load from 8 % to 100 %