

POWER CONVERSION UNITS

for hydrogen electrolysis process



A clean, secure and sustainable energy future.

The time is right to exploit hydrogen's potential to play a key role in a clean, secure and sustainable energy future.

Thanks to its valuable attributes (it is light, storable, reactive, has high energy content per unit mass, and can be readily produced at industrial scale), and to the possibility to feed its production with energy from renewables (so called, green), hydrogen looks promising to be a lowest-cost option for storing electricity and pursuing worldwide de-carbonization goals.

How can FRIEM sustain the clean hydrogen production?

FRIEM plays its role in this energy revolution by sustaining the full-scale industrial deployment of hydrogen electrolysis process, providing a wide range of Power Conversion Units (PCU).

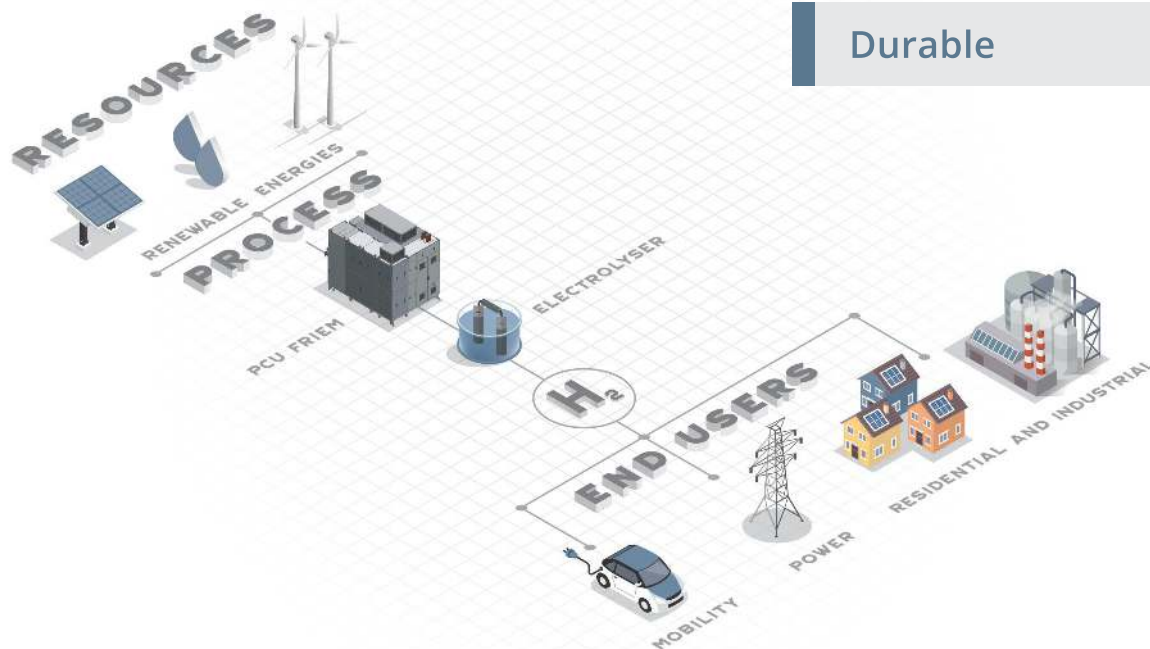
Robust, efficient and purpose-built, FRIEM's PCU pairs with main electrolytic cells technologies (Alkaline, PEM and SOEC).

Thanks to more than 70 years' experience in power conversion business, and also to well-established business collaboration with the main technology providers in this industry, FRIEM is the right partner to develop customized and long-lasting solutions to accomplish the goals for an effective utilization of the resources.

Efficient

Reliable

Durable



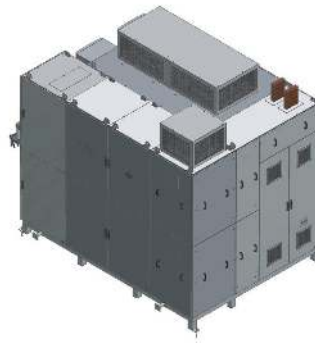
Did you know?

FRIEM has been selected as power converter expert for EVERYWH2ERE project, within a consortium made by 13 EU partners. The aim is making European cities living lab for the demonstration of fuel cell and hydrogen technologies, starting from their use in everyday applications.



FRIEM's Power Conversion Unit (PCU) in short

- High efficiency of the system
- Reduced footprint
- Low impact on the supply voltage grid
- Development of plug & play solutions
- Technical support during the whole lifecycle of the plant



PCU		H ₂ -Rect-5	H ₂ -Rect-10	H ₂ -Rect-20	H ₂ -Rect-X
Main Technical Characteristics					
Max output DC Current	A	5.000	10.000	20.000	>20.000
Vdc	V	Up to 1.500			
Operation	-	Continuous			
Type of regulation	-	Digital			
Regulation accuracy	-	0.1% full scale			
Regulation range	-	1% ... 100% or rated current			
Pulse	-	6-12 or multiple configuration			
Semiconductor		Diode/Thyristor			
Rectifier cooling		Air forced, demi water in closed loop			
N-1 Redundancy on semiconductors		On demand			
Efficiency	%	>95			
Communication protocol		Profibus, Modbus, Profinet, Ethernet			
Vac primary	V	400 ÷ 30.000			
Transformer type	-	Oil filled, dry type			
Supply frequency	Hz	50-60			
Installation	-	Indoor/Outdoor			
Operation Temperature	°C	-10 ÷ +40			
Standards	-	IEC, CSA, EAC/GOST, UL			
Protections	-	Overcurrent, overvoltage, temperature monitoring, water flow and temperature, coolant level and pressure			
Options	-	Polarization Unit, DC Isolators, DC Current metering system, Harmonic Filter, Pre-Magnetization Unit, MV Switchgear			

Note: technical specifications could be subject to modifications according to the project request, please contact FRIEM.

