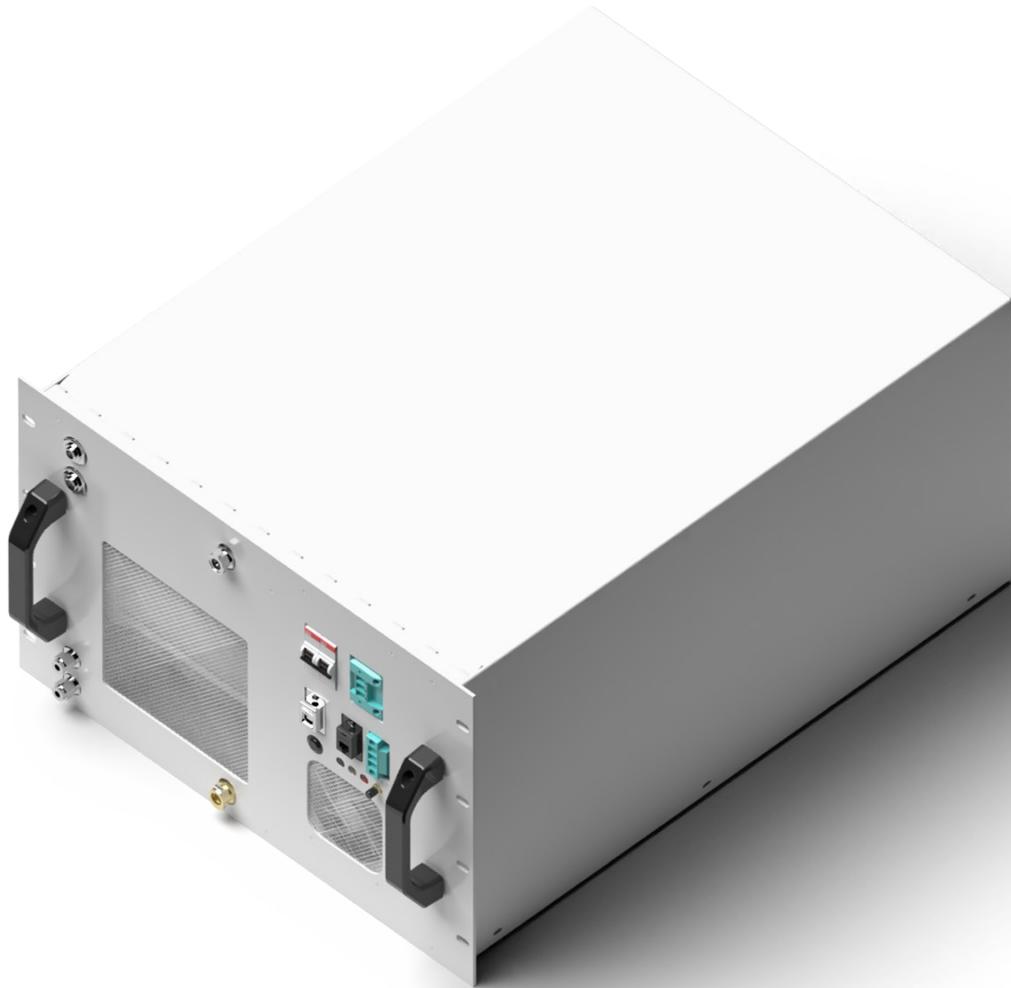


Electrolyser EL 2.1



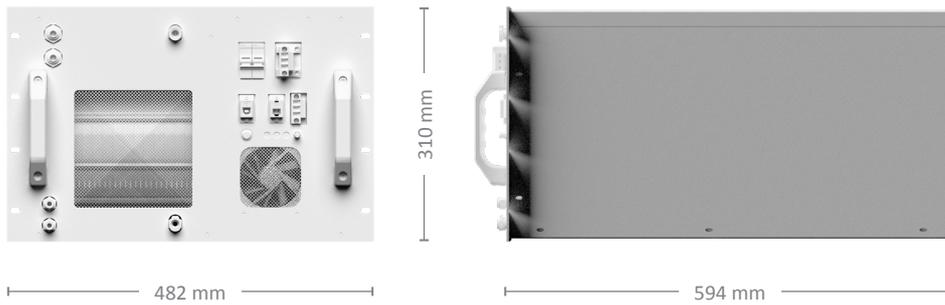
Enapter's patented anion exchange membrane (AEM) electrolyser is a standardized, stackable and flexible system to produce on-site hydrogen. The modular design – paired with advanced software integration – allows set up in minutes and remote control and management. Stack this electrolyser to achieve the required hydrogen flowrate.

KEY FEATURES

- ≡ High efficiency
- ≡ Automated & remote operation with Enapter's Energy Management System
- ≡ Low requirements for input water purity
- ≡ Ideal for on-site hydrogen production
- ≡ Modules can be easily integrated in 19" racks
- ≡ Safe operation
- ≡ Scalable and modular, add as many modules as needed
- ≡ Quick and easy installation
- ≡ Low maintenance requirements
- ≡ Small footprint thanks to compact design

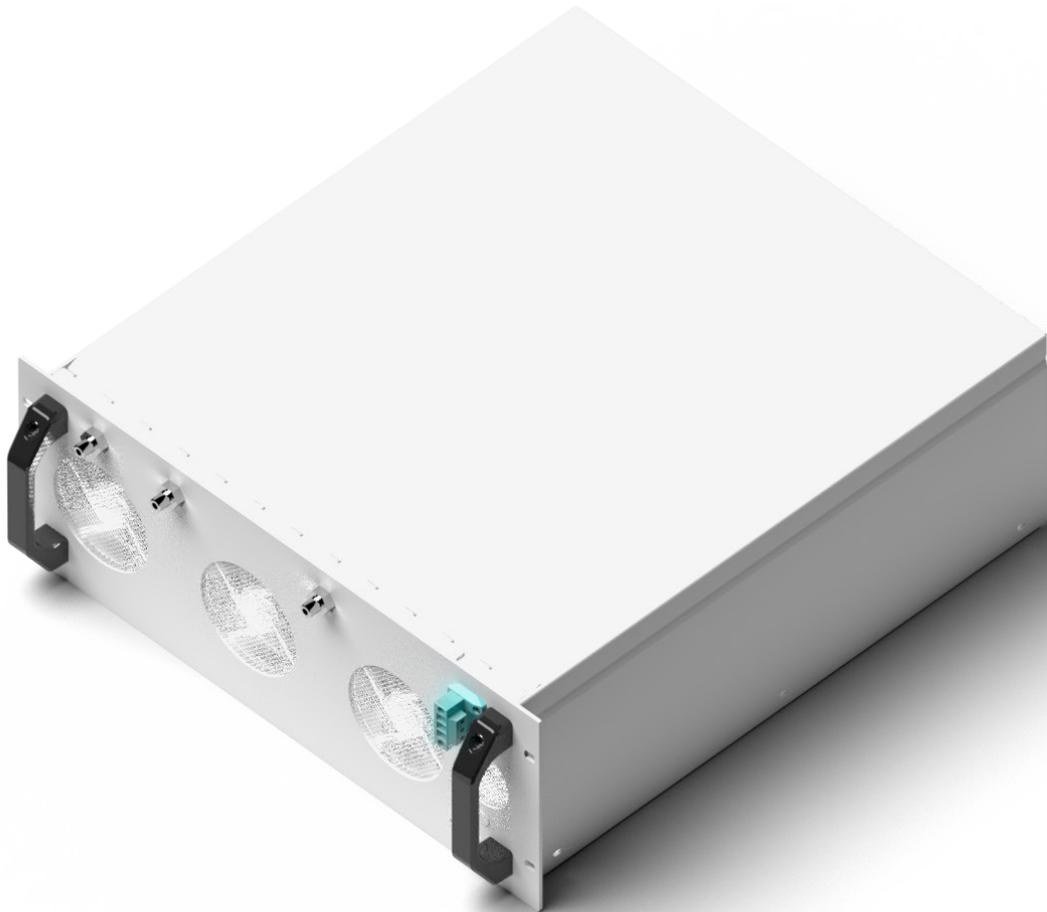
Specifications

Enapter
Electrolyser EL 2.1



Hydrogen production rate	500 NL/hr 1.0785 kg/24 hr
Output pressure	Up to 35 bar
Hydrogen output purity directly	~ 99.9% (Impurities: ~ 1,000 ppm H ₂ O)
Hydrogen output purity with dryer	> 99.999% in molar fraction
Average dewpoint and impurities with dryer	< -70°C, compliant with ISO14687 (H ₂ O < 5 ppm, O ₂ < 5 ppm)
Operative power consumption (at standard conditions)	2.2 kW
Stand-by power consumption	15 W
Standard power supply	AC 200-240 V, 50/60 Hz
Water consumption	0.4 L/hr
Water input conductivity	< 20 µS/cm (at 25°C)
Water input pressure	1 - 4 bar
Ambient temperature	5 - 45°C
Ambient humidity	20 - 95%, non-condensing
Module dimensions	W × D × H in mm = 482 × 594 × 310 (7U)
Module weight (without water)	50 kg
Control and monitoring	Fully automatic with Enapter's EMS, Modbus

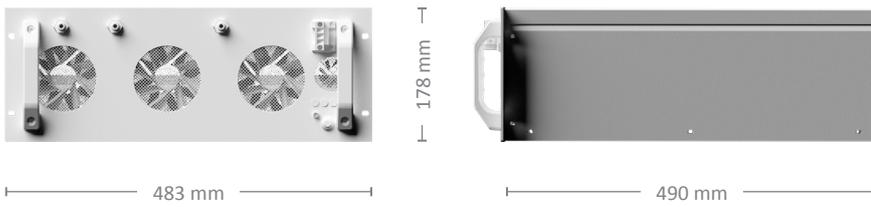
Dryer DRY 2.0



Enapter's dryer is a hybrid temperature/pressure swing adsorption system that comprises of cartridges filled with a highly adsorbent material. The dryer is maintenance-free. During operation, one cartridge catches the humidity from the hydrogen gas stream of the electrolyser, while the other cartridge is heated and regenerated. The dryer is rack-mountable in a standard 19" cabinet.

Specifications

Enapter
Dryer DRY 2.0



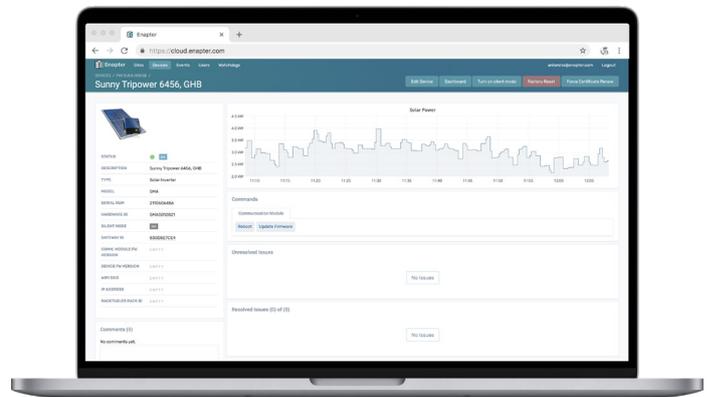
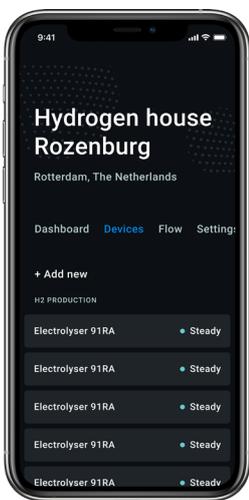
MODEL DM2030

Hydrogen flow rate	Up to 2 Nm ³ /hr
Hydrogen output purity at all times	> 99.999% in molar fraction
Average dewpoint and impurities	< -70°C, compliant with ISO14687 (H ₂ O < 5 ppm, O ₂ < 5 ppm)
Operative power consumption	375 W
Module dimensions	W × D × H in mm = 483 × 490 × 178 (4U)
Maintenance	Maintenance-free
Control and monitoring	Fully automatic with Enapter's EMS
Number of electrolyzers that can be connected	4
Standard power supply	AC 100-240 V, 50/60 Hz

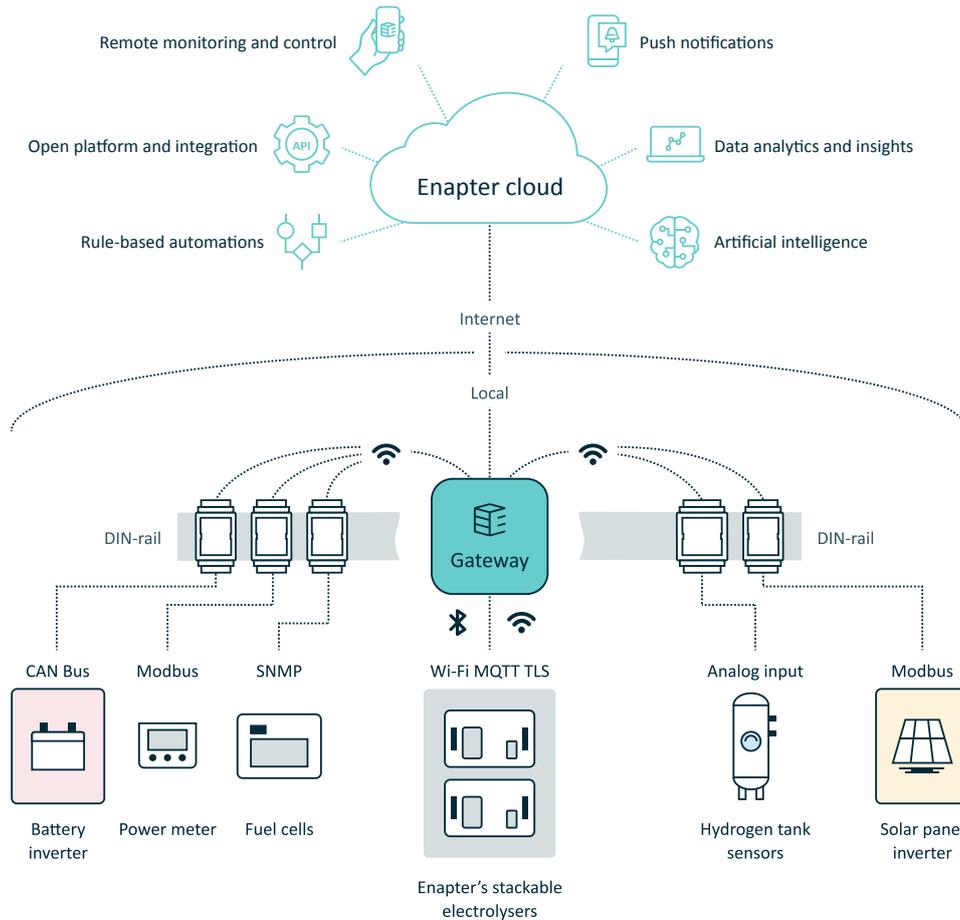
MODEL DM1030

Hydrogen flow rate	Up to 1 Nm ³ /hr
Hydrogen output purity at all times	> 99.999% in molar fraction
Average dewpoint and impurities	< -70°C, compliant with ISO14687 (H ₂ O < 5 ppm, O ₂ < 5 ppm)
Operative power consumption	200 W
Module dimensions	W × D × H in mm = 483 × 490 × 178 (4U)
Maintenance	Maintenance-free
Control and monitoring	Fully automatic with Enapter's EMS
Number of electrolyzers that can be connected	2
Standard power supply	AC 100-240 V, 50/60 Hz

Energy Management System (EMS)



Enapter's unique Energy Management System (EMS) allows for intuitive monitoring and control of the electrolysers and dryers, as well as easy integration with third-party devices (ie. fuel cells, sensors, tanks, solar, wind, etc.). The EMS takes energy system control software to a whole new level.



A comprehensive **web and mobile dashboard** is the face of the EMS. It provides full overview and control of all connected devices. It is not only the electrolyser that can be monitored and controlled; full analytics about the energy system are also available.

The EMS **maintains optimal performance** of the system, reducing both energy consumption and costs. If deviations are detected, customizable alerts (SMS, emails or calls) keep you informed to protect the energy system. A **rule-based management system** allows for the user to set and change the parameters of how different components of the energy system interact in an automated way. All Enapter products come with an **IoT communication module** for remote monitoring and control. Communication modules are also available to bring wireless connectivity to solar panels, hydrogen tanks, batteries, digital and analog sensors.

Industry grade standards: All software is equipped with MQTT and OPC-UA Interfaces to be Industry 4.0 compatible. Industry grade standards and protocols such

as RS-485, CAN, Modbus, SNMP, HTTP and others are available. Adding new devices to the EMS couldn't be any easier. Simply connect a communication device and scan a **QR code** to commission your new device. All data is stored in the cloud (military-grade encryption) which is equipped with a **predictive 24/7 monitoring system**. Enapter ensures high security standards by using TLS 1.2 protocol. The authorization system is based on X.509 time limited and automatically renewed certificates.

Mobile first. We build all features on mobile platforms to provide full flexibility to customers.

The autonomous **Enapter IoT Gateway** mitigates Internet connectivity issues and stores data locally for up to a year. The highly modular and scalable architecture collects and integrates custom sensor data into the system. The gateway is based on open source software, allowing customization, broad acceptance and collaborative work across the industry.

Use cases



The AEM electrolyzer is a versatile building block currently in operation in more than 30 countries and numerous applications around the world. Hydrogen from the AEM electrolyzer serves as long-term energy storage, fuel in vehicles, raw material in industry or fuel for heating.

Use cases

Hydrogen's versatility is showcased with our plug-and-play building blocks. Here are a few examples:



Electricity storage

France

Hydrogen keeps this refuge in the Alps operational year-round. Since 2015, it runs autonomously for up to 16 days without sunshine using a 2 kW fuel cell.

- ≡ Electrolyser: 500 NL/hr
- ≡ Storage: 5 kg



Mobility solutions

China

Enapter electrolyzers are integrated into a mobile drone refueling station. The electrolyser produces hydrogen right onsite to refuel drones that need to be in the air for long times.

- ≡ Electrolyser: 1,000 NL/hr
- ≡ Storage: 3.5 L



Power-to-Gas

Australia

Solar made hydrogen is combined with CO₂ which is extracted directly from the air to create renewable methane. Such "power fuel" can be used for heating and cooling, transport or industrial use.

- ≡ Electrolyser: 500 NL/hr
- ≡ Storage: none



Industrial solutions

Portugal

Enapter electrolyzers are being used to purify nitrogen that is contaminated with oxygen. Oxygen reacts with hydrogen to form water which can easily be dried.

- ≡ Electrolyser: 1,000 NL/hr
- ≡ Storage: none



Electricity storage

La Reunion

Only accessible by foot or helicopter, the community is energy independent with solar and hydrogen since 2017. The storage system provides 10 days of autonomy.

- ≡ Electrolyser: 500 NL/hr
- ≡ Storage: 3 kg



Power-to-Heat

The Netherlands

In June 2019, the first hydrogen project for residential heating was officially opened in Rozenburg near Rotterdam. Green hydrogen is directly used to generate heat.

- ≡ Electrolyser: 4,000 NL/hr
- ≡ Storage: none

See more Enapter use cases:
www.enapter.com