



The mobile, hydrogen-powered charger & generator

Zero-emission DC fast charging and AC power supply in a single device



Image shown is based on a preliminary design and is subject to change without notice.

GREEN CHARGING & POWER. ANYTIME, ANYWHERE

Green hydrogen, the zero emission energy vector

The electrification of vehicles and equipment in both the on- and off-road sectors poses unique challenges for OEMs, infrastructure providers and end users alike. Fast charging over DC requires high levels of power, often at times of peak consumption which creates strain on the electrical grid. The use of diesel generators to firm up charging capacity is noisy and harmful for the environment. Zero emission zones are expanding both geographically and in their restrictiveness. Green hydrogen is emerging as a powerful zero emission energy vector to replace diesel and firm up grid capacity when and where it is needed. Green hydrogen is produced using renewable energy like wind, solar or hydro. As renewable generation grows, the amount of excess electricity that cannot be used by the power grid increases significantly. Instead of wasting this precious energy, it can instead be used to produce green hydrogen.

Introducing the kvyreen genset charger

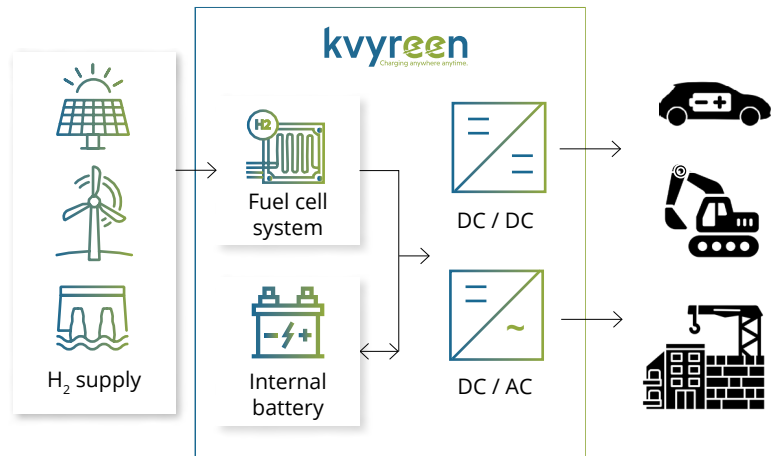
The kvyreen genset charger is a mobile, hydrogen-powered DC fast charger which includes an integrated AC power output. When used with green hydrogen, it delivers low carbon electricity, independent from the local electricity grid and without the use of fossil fuels. The kvyreen genset charger delivers on-demand DC fast charging of battery electric vehicles and equipment on construction sites, at events and concerts or wherever there is a lack of sufficient infrastructure. The integrated AC output enables the system to provide on-site power supply, exactly like a diesel genset, but without the CO₂ or NO_x emissions and without noise. For applications which have already adopted battery energy storage systems, the kvyreen genset charger's AC output can be used to charge these batteries on site with hydrogen serving as the zero-emission energy vector.



The kvyreen genset charger is based on the same technology as the kvyreen charger, a proven industrial product!

A flexible and powerful platform

The kvyreen genset charger delivers up to 80 kW of DC charging power over a CCS-2 plug combined with a 125 Amp AC output at 400 Volts and 50 Hertz. Hydrogen is either supplied via bundle, tube trailer or the Hydros spider¹ network. The system uses state-of-the-art fuel cell technology and custom power electronics to transform energy stored in hydrogen into electricity to supply on-site power or charge battery electric vehicles and equipment. The same technology platform is currently operating as a stand-alone public fast charger for battery electric vehicles but can also be used to power off-road vehicles and ships, as a stand-alone H2 genset as well as to deliver AC power to the grid as part of combined heat and power system.



Guaranteeing ease of use

The kvyreen's system allows real-time data management and control via a remote dashboard. A comprehensive service package covering planned and unplanned maintenance, spare parts management, remote support and training is available. The kvyreen can be installed in less than 60 minutes once the hydrogen supply has been prepared.

Customization

Upon acquiring kvyreen, you gain the flexibility to customize it according to your unique brand identity. See picture on right for example of customized kvyreen 80 charger for customer AVIA Volt Switzerland.

Watch video of kvyreen charger in action



Benefits at a glance

- DC fast charging at up to 80 kW over a CCS-2 plug
- 3-phase AC output up to 125 A at 400 V and 50 Hz
- 100% reliable and guaranteed power output
- Remote dashboard for monitoring and condition based maintenance
- CO₂- and NO_x-free with green hydrogen
- Mobile unit, can be installed wherever needed
- External protective frame available as option
- Integration with various external H2 supplies possible



¹ Containerized hydrogen logistics solution from H2 Energy. For more information see: <https://www.hydr spider.ch/en>

Technical specifications

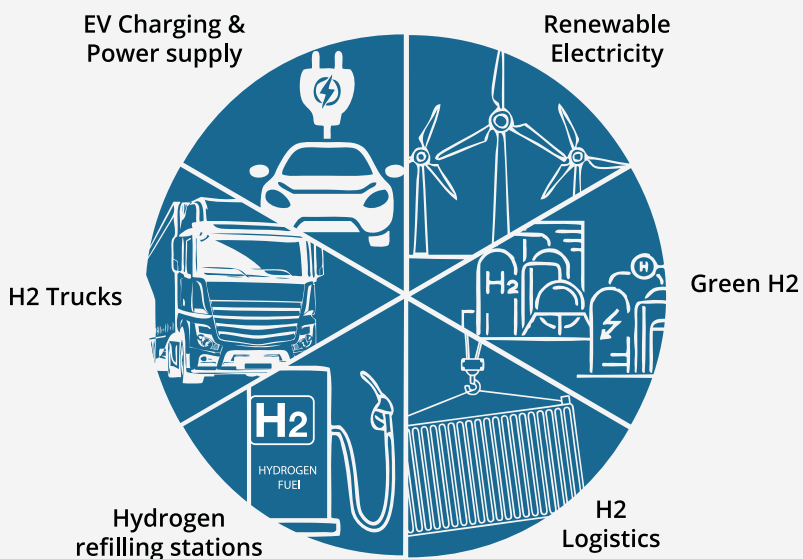
Specifications ²	Unit	kvyreen 80 GSC	kvyreen 160 GSC
Dimensions (W × L × H)	m	1.6 × 2.1 × 2.4	1.6 × 3.9 × 2.4
Weight (approx.)	kg	2,000	3,000
Max. inclination	degree	+/- 5 to horizontal	+/- 5 to horizontal
Ambient temperature ³	°C	-30 to +35	-30 to +35
Hydrogen supply pressure	bar	9 to 16	9 to 16
Max. altitude	m a.s.l.	1,500	1,500
Fuel cell system			
Rated power	kW	80	160
Hydrogen consumption ⁴	kg/hr	5.5	11
Hydrogen quality	-	ISO14687-2 2012 Type I, Grade D SAE J2719	
Electrical output			
Max. charging power (DC) ⁵	kW	90	180
Max. charging voltage	V	800	800
Number of charging points	-	1	1
Charging connector	-	CCS Type II	CCS Type II
AC Output	A	125	2x 125
AC Voltage / Frequency	V / Hz	400 / 50	400 / 50
Number of phases	-	3 + N + PE	3 + N + PE

² Specifications are work in progress and can be subject to change

³ Without de-rating of charging power

⁴ At rated power and beginning of life

⁵ For a limited time with battery buffering



About Kvyreen

Kvyreen is a subsidiary of H2 Energy and is responsible for the global sales and marketing of the kvyreen product range. Founded in 2014, H2 Energy is a pioneer in the hydrogen industry and develops, engineers and invests in clean hydrogen eco-systems around Europe. The company is involved in the entire hydrogen value chain, offering know-how and engineering excellence every step of the way.

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