

**DC/DC CONVERTER
TO FEED
ELECTROLYSERS
DIRECTLY FROM A
SOLAR PV PLANT**

Enabling green hydrogen production

INGECON® H2 D-lyzer enables a true green hydrogen production, as it has been conceived to feed the electrolyser with solar energy.

DC/DC converter

INGECON® H2 D-lyzer is a DC/DC converter with a DC input for the solar PV array and a DC output that connects directly to the electrolyser.

Liquid Cooling System (LCS)

The LCS is a closed circuit supplied totally filled and purged, equipped with fast connectors with an anti-dripping system, so it offers zero risk of particle entrance. It has been

designed to avoid siphons in order to easily purge it if necessary. The coolant used is a biodegradable glycol water mixture. There is no need of emptying the LCS in order to replace the phases, nor the sensors.

Ease of maintenance

All the elements can be removed or replaced directly from the converter's front and back sides, thanks to its new design.

Buck converter

The INGECON® H2 D-lyzer is a buck converter, as the output voltage is lower than the input voltage.



Long-lasting design

The converters have been designed to guarantee a long life expectancy, as demonstrated by the stress tests they are subjected to. Standard 2-year warranty, extendable for up to 25 years.

Easy to operate

The INGECON® H2 D-lyzer converters feature a number of LEDs to show the converter operating status with warning lights to indicate any incidents. All this helps to simplify and facilitate maintenance tasks.

Monitoring and communication

Wi-Fi and dual Ethernet communications supplied as standard. Also included at no extra cost the monitoring applications to record and monitor the converter's internal operating variables through the Internet (alarms, real time production, etc.). Two Ethernet communication ports available (one for monitoring and one for plant controlling), allowing fast and simultaneous plant control.

PROTECTIONS

- DC Reverse polarity.
- Short-circuits and overloads at the output.
- Insulation failure DC.
- Lightning induced surge arresters, type II.
- Motorized DC switch.
- Hardware protection via firmware.
- Additional protection for the power stack, liquid cooled, IP65 rated and air cooled by a closed loop.
- Integrated stack discharge system.

OPTIONAL ACCESSORIES

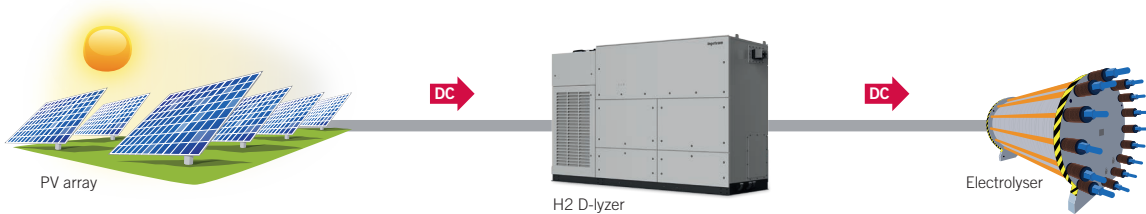
- Lightning induced surge arresters, type I+II.

LIQUID COOLING SYSTEM

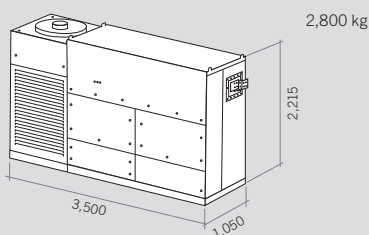
- LCS to refrigerate the IGBTs.
- More optimized component usage: greater thermal stability.
- Less moving components: lower power consumption and less maintenance works.
- No risk of particle entrance.
- C5H anti-corrosive rating with stainless steel components.
- LCS is used in many industries. Thus, it is very reliable, as its components are subject to many validation tests.
- Fast connectors with anti-dripping system Biodegradable glycol water mixture.
- No need of emptying the LCS in order to replace the phases, nor the sensors.

ADVANTAGES

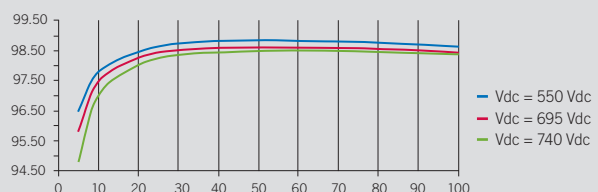
- Enabling green hydrogen production directly from solar energy.
- Higher current density.
- Latest generation electronics.
- More efficient electronic protection.
- Enhanced performance.
- Easier maintenance thanks to its new design and enclosure.
- Lightweight spares.
- Components easily replaceable.
- No medium voltage elements.
- Higher power-to-gas conversion efficiency.
- Simple and modular plant design.



Size and weight (mm)



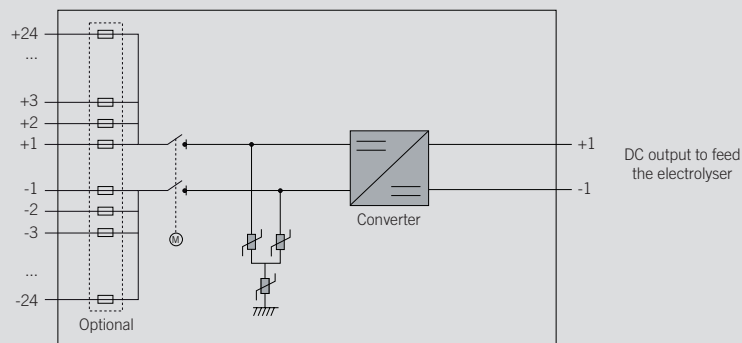
Efficiency INGECON® H2 D-lyzer



INGECON® H2 D6000	
Output for electrolyser (DC)	
Voltage Range	300 ⁽¹⁾ - 1,300 V
Maximum voltage	1,300 V
Rated current ⁽²⁾	6,000 A
Type of connection	Connection to copper bars
Output protection	
Overvoltage protections	Type II surge arresters (type I+II optional)
Other protections	Insulation failure monitoring / Electrolyser stack discharge system
Solar PV input (DC)	
Maximum current	6,000 A
Voltage range	300 ⁽³⁾ - 1,300 V
Maximum voltage	1,500 V
Number of inputs with fuse-holders	Up to 24
Input protections	
Overvoltage protections	Type II surge arresters (type I+II optional)
DC switch	Motorized DC load break disconnect
Other protections	Up to 24 pairs of DC fuses (optional) / Reverse polarity / Insulation failure monitoring / Emergency pushbutton
Features	
Maximum efficiency	98.9%
Euroefficiency	98.5%
Max. consumption aux. services	7,600 W
Stand-by consumption	< 180 W
General Information	
Operating temperature	-20 °C to +65 °C
Relative humidity (non-condensing)	0 - 100%
Protection class	IP65 ⁽⁴⁾
Corrosion protection	External corrosion protection
Maximum altitude	4,500 m (for installations beyond 1,000 m, please contact Ingeteam's hydrogen sales department)
Cooling system	Liquid cooling system and forced air cooling system with temperature control (400 V 3 phase + neutral power supply, 50/60 Hz)
Air flow range	0 - 18,000 m ³ /h
Average air flow	12,000 m ³ /h
Acoustic emission (100% / 50% load)	57 dB(A) at 10 m / 49.7 dB(A) at 10 m
Marking	CE
Safety certifications	EN 50178

Notes: ⁽¹⁾ For lower voltages, please contact Ingeteam's H2 sales department ⁽²⁾ This rated current has been calculated for Vdcmín=720 V; Vdcmax=900 V; ambient temperature 35 °C ⁽³⁾ It is a buck converter, so the input voltage has to be greater than the output voltage ⁽⁴⁾ Except for the LC filter and the air-water heat exchanger, that are IP54.

INGECON® H2 D-lyzer





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