

**MEDIUM VOLTAGE
ELECTROLYZER
CONVERTER
STATION WITH ALL
THE COMPONENTS
SUPPLIED ON TOP
OF THE SAME
SKID PLATFORM**

This medium-voltage solution integrates all the necessary elements to develop a large-scale hydrogen electrolysis plant.

**Maximize your investment
with a minimal effort**

Ingeteam's FSK E12000 power station is a compact, customizable and flexible solution that can be configured to suit each customer's requirements. All the equipment is suitable for outdoor installation, so there is no need of any kind of housing.

Higher adaptability and power density

This power station is very versatile, as it presents the MV/LV step-down transformer integrated into a steel platform together with the LV and MV components, including the converter.

Plug & Play technology

This MV solution integrates power conversion equipment, liquid-filled hermetically sealed transformer up to 40.5 kV and provision for low voltage equipment. The MV Skid is deliv-

ered pre-assembled for a fast on-site connection with one converter with four power stacks from Ingeteam's INGECON® H2 E-lyzer converter family.

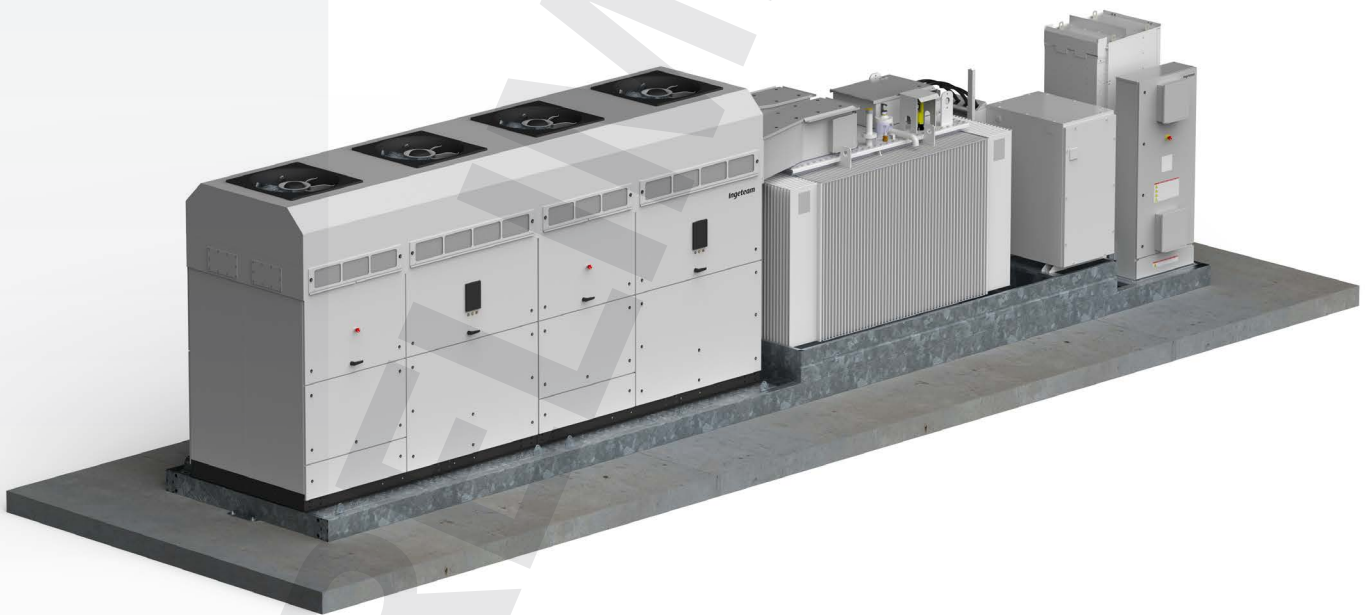
Complete accessibility

Thanks to the lack of housing, the converter, the switchgear and the transformer can have immediate access. Furthermore, the design of the E-lyzer converter has been conceived to facilitate maintenance and repair works.

Maximum protection

Ingeteam's E-lyzer converter feature an IP65 protection class for its power stacks thanks to a combined water and air cooling system that optimises the operating temperature of the power electronics.

Apart from that, it features the main electrical protections and it deploys grid support functionalities, such as power factor control, reactive power compensation or active filtering.



CONSTRUCTION

- Steel base frame.
- Suitable for slab or piers mounting.
- Compact design, minimising freight costs.
- Minimum installation at project site.

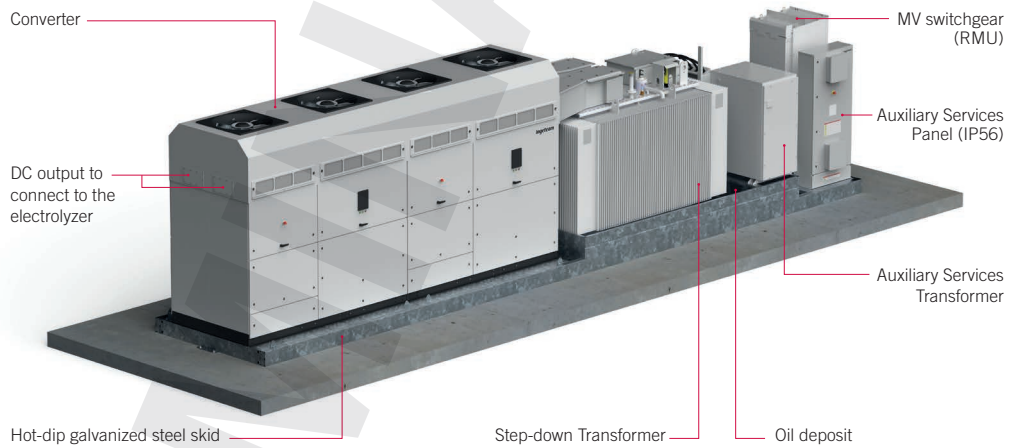
OPTIONAL ACCESSORIES

- Auxiliary services transformer (up to 60 kVA, Dyn11).
- MV Surge arresters.
- Low voltage distribution panel (IP56).
- Power plant commissioning.
- High-speed Ethernet / fibre optic communication infrastructure for Plug & Play connection to the Power Plant Controller and/or SCADA systems.
- Energy meter for auxiliary services and/or energy production.
- Insulation monitoring relay for continuous monitoring of IS systems insulation.
- Reactive power regulation.

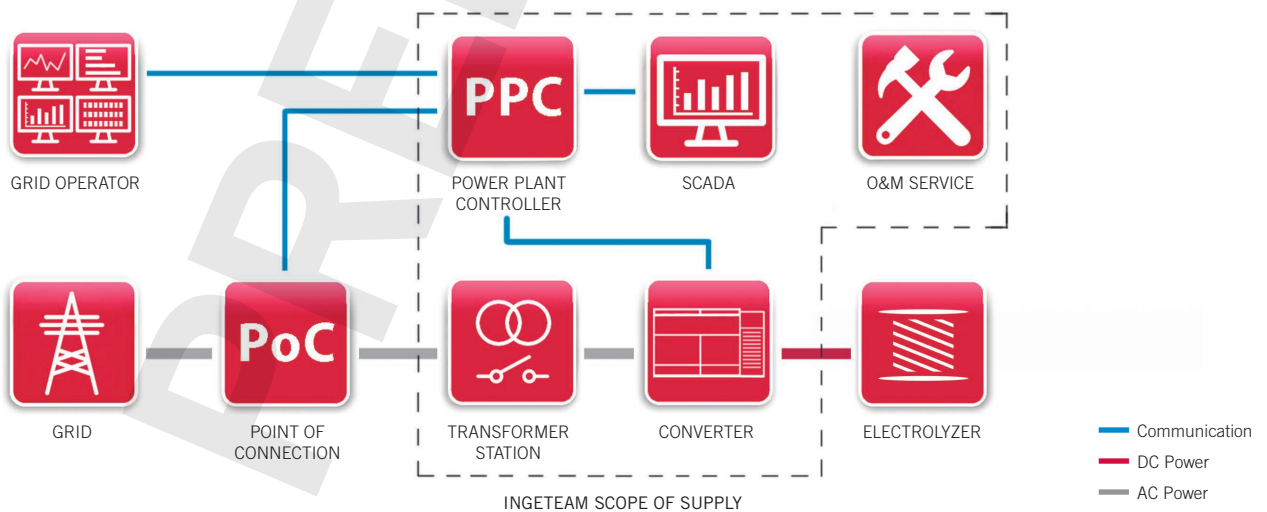
STANDARD EQUIPMENT

- One converter.
- Liquid-filled hermetically-sealed step-down transformer up to 40.5 kV.
- 1L1A MV switchgear (2L1A optional).
- Oil-retention tank.

COMPONENTS



PLANT CONFIGURATION



INGECON® H2 FSK E12000

General information

Operating temperature range	from -20 °C to +50 °C
Relative humidity (non condensing)	0 - 100%
Maximum altitude	3,000 masl (power derating starting at 1,000 masl)

Converter

DC voltage range	500 - 1,300 V
Maximum DC voltage	1,300 V
Rated DC current ⁽¹⁾	12,000 A
Maximum DC current	15,860 A
Number of power stacks	4

Step-down Transformer

Medium voltage	From 20 kV up to 36 kV, 50-60 Hz
Cooling system	ONAN (KNAN optional)
Minimum PEI (Peak Efficiency Index) ⁽²⁾	99,40%
Protection degree	IP54

MV Switchgear (RMU)

Medium voltage	24 kV / 36 kV / 40.5 kV
Rated current	630 A
Cooling system	Natural air ventilation
Protection degree	IP54 (IP55 optional)

Equipment

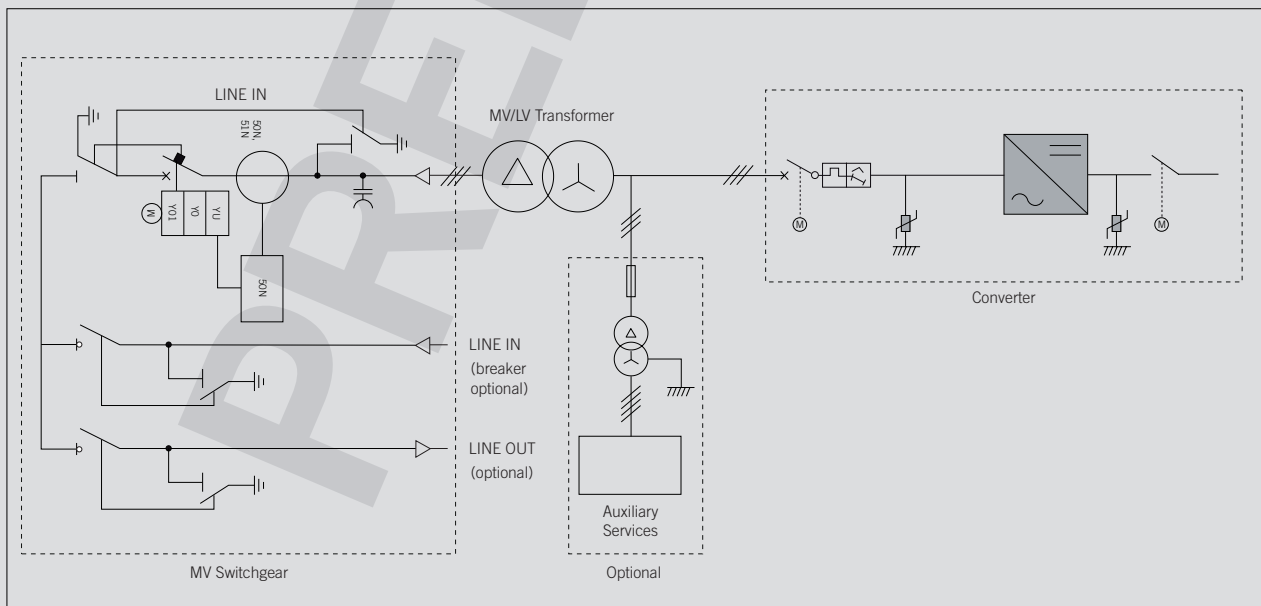
Auxiliary services panel	Standard version (optional monitoring system)
MV/LV transformer	Oil-immersed hermetically sealed transformer
MV Switchgear	1L1A cells (2L1A optional)

Mechanical information

Structure type	Hot dip galvanized steel skid
Dimensions Full Skid (W x D x H)	11,390 x 2,100 x 2,730 mm
Weight	25 T
Standards	IEC 62271-212, IEC 62271-200, IEC 60076, IEC 61439-1

Notes: ⁽¹⁾ This rated current has been calculated for Vdcmín=720 V; Vdcmáx=900 V; ambient temperature 35 °C ⁽²⁾ For European installations, ECO design according to the EU 548/2014 and EU 2019/1783 standards.

Electric diagram



Ingeteam

Ingeteam Power Technology, S.A.
Avda. Ciudad de la Innovación, 13
31621 Sarriguren (Navarra) - Spain
Tel.: +34 948 288 000
Fax: +34 948 288 001
e-mail: solar.energy@ingeteam.com

Ingeteam S.r.l.
Via Emilia Ponente, 232
48014 Castel Bolognese (RA) - Italy
Tel.: +39 0546 651 490
Fax: +39 054 665 5391
e-mail: italia.energy@ingeteam.com

Ingeteam SAS
La Naurouze B - 140 rue Carmin
31670 Labège - France
Tel.: +33 (0)5 61 25 00 00
Fax: +33 (0)5 61 25 00 11
e-mail: france@ingeteam.com

Ingeteam INC.
3550 W. Canal St.
Milwaukee, WI 53208 - USA
Tel.: +1 (414) 934 4100 / +1 (855) 821 7190
Fax: +1 (414) 342 0736
e-mail: solar.us@ingeteam.com

Ingeteam, a.s.
Technologická 371/1
70800 Ostrava - Pustkovec
Czech Republic
Tel.: +420 59 747 6800
Fax: +420 59 732 6899
e-mail: czech@ingeteam.com

Ingeteam Shanghai, Co. Ltd.
Shanghai Trade Square, 1105
188 Si Ping Road
200086 Shanghai - P.R. China
Tel.: +86 21 65 07 76 36
Fax: +86 21 65 07 76 38
e-mail: shanghai@ingeteam.com

Ingeteam, S.A. de C.V.
Leibnitz Ext 13 Int 1102, Colonia Anzures
11590 - Miguel Hidalgo
Ciudad de México - Mexico
Tel.: +52 81 8311 4858
Fax: +52 81 8311 4859
e-mail: northamerica@ingeteam.com

Ingeteam Ltda.
Rua Estácio de Sá, 560
Jd. Santa Genebra
13080-010 Campinas/SP - Brazil
Tel.: +55 19 3037 3773
e-mail: brazil@ingeteam.com

Ingeteam Pty Ltd.
Unit 2 Alphen Square South
16th Road, Randjiespark
Midrand 1682 - South Africa
Tel.: +2711 314 3190
Fax: +2711 314 2420
e-mail: southafrica@ingeteam.com

Ingeteam SpA
Los militares 5890, Torre A, oficina 401
7560742 - Las Condes
Santiago de Chile - Chile
Tel.: +56 2 29574531
e-mail: chile@ingeteam.com

Ingeteam Power Technology India Pvt. Ltd.
2nd Floor, 431
Udyog Vihar, Phase III
122016 Gurgaon (Haryana) - India
Tel.: +91 124 420 6491-5
Fax: +91 124 420 6493
e-mail: india@ingeteam.com

Ingeteam Sp. z o.o.
Ul. Koszykowa 60/62 m 39
00-673 Warszawa - Poland
Tel.: +48 22 821 9930
Fax: +48 22 821 9931
e-mail: polska@ingeteam.com

Ingeteam Australia Pty Ltd.
iAccelerate Centre, Building 239
Innovation Campus, Squires Way
North Wollongong, NSW 2500 - Australia
Tel.: +61 429 111 190
e-mail: australia@ingeteam.com

Ingeteam Panama S.A.
Av. Manuel Espinosa Batista,
Ed. Torre Internacional
Business Center, Apto./Local 407
Urb.C45 Bella Vista
Bella Vista - Panama
Tel.: +50 761 329 467

Ingeteam Service S.R.L.
Bucuresti, Sector 2,
Bulevardul Dimitrie Pompeiu Nr 5-7
Cladirea Hermes Business
Campus 1, Birou 236, Etaj 2
Romania
Tel.: +40 728 993 202

Ingeteam Philippines Inc.
Office 2, Unit 330, Milelong Bldg.
Amorsolo St. corner Rufino St.
1230 Makati
Gran Manila - Philippines
Tel.: +63 0917 677 6039

Ingeteam Power Technology, S.A.
Level 1, Al Bateen Tower C6 Bainunah
ADIB Building, Street 34
PO BOX 30010 - Abu Dhabi
United Arab Emirates
Tel.: +971 50 125 8244

Ingeteam Vietnam Ltd.
Spaces - 28A Tran Hung Dao Street
Phan Chu Trinh Ward
Hoan Kiem District
Ha Noi City - Vietnam
Tel.: +84 24 71014057
e-mail: vietnam@ingeteam.com

Ingeteam Uruguay, S.A.
Avenida 18 de Julio, 1474, Piso 12
11200, Montevideo, Uruguay
Tel.: +598 934 92064