XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

TECHNICAL SPECIFICATION SHEET

Version: R2.11

SYSTEM OVERVIEW

XINTC develops and supplies high-efficiency, modular electrolyser systems for the global mid-scale hydrogen market. Based on next-generation alkaline technology, our systems are designed for cost-effectiveness, environmental sustainability and operational flexibility. XINTC enables decentralised hydrogen production for any location and application, with the aim of minimising the total cost of ownership (TCO).

Our modular architecture allows fast configuration and scalability. Each system is composed of standardised building blocks that can be configured for various energy sources, pressures and purities, which reduces the TCO and simplifies deployment.

Where this Technical Specification Sheet forms part of a purchase agreement, it applies only to the configuration specified in that agreement. References in this sheet to the SPM, optional coatings, cooling or heat-recovery options, alternative capacities and other configurations do not form part of the scope of supply unless they are expressly included in that agreement. The project-specific specifications and the order of precedence in the purchase agreement prevail.

CORE TECHNOLOGY

XINTC designs, manufactures, and delivers high-efficiency, multi-core electrolyser systems for the global mid-scale hydrogen market. Using next-generation alkaline technology, our systems combine environmental sustainability with a high level of cost-efficiency. XINTC's core objective is to enable decentralised hydrogen production, at any location, for any application, at the lowest achievable cost, minimising the TCO over the full operational life of the system.

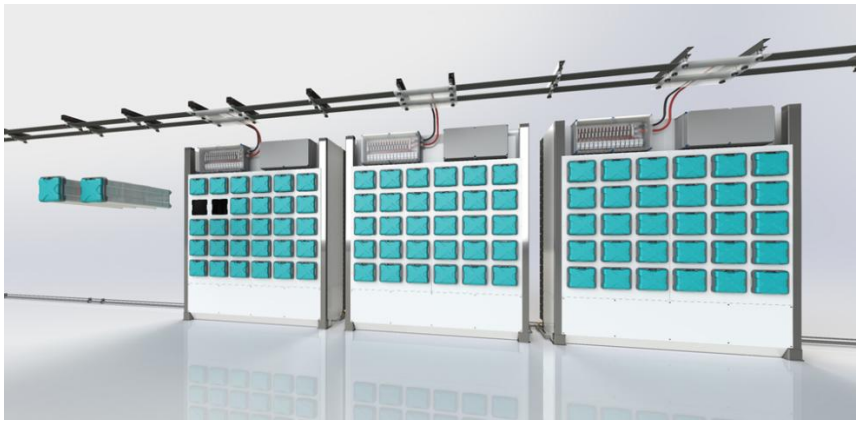
Our electrolysers are engineered for robustness, reliability, and operational simplicity. Rather than relying on complex, custom-built designs, XINTC uses a fully modular architecture. Standardised modules can be configured quickly to meet varying requirements for energy source, hydrogen purity, production rate and outlet pressure. This approach provides scalability and flexibility.



At the heart of our technology are XINTC's patented gas-modules, a new concept compared with conventional electrolyser stacks. The gas-modules are made of engineered polymers instead of metal, offering high chemical resistance, durability, and recyclability. The design requires no membranes, gaskets or critical raw materials. Each gas-module contains 103 reaction cells in a sealed, monolithic block designed to be liquid- and gas-tight.

Each gas-module pair consists of two gas-modules operating in parallel, managed by intelligent switching electronics and embedded control software. The gas-modules require no internal maintenance and have an expected operational lifetime of 100,000 switching cycles or 82,800 operating hours, subject to the service-life assumptions and degradation limits stated in the GPM specifications.

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global



XINTC systems are built from sections, each comprising 15 pairs of gas-modules. These modular sections form the primary building blocks of the overall platform. Each section is designed to convert 150 kW of nominal electrical input (200 kW peak) into hydrogen in an efficient and controlled manner. Within each section, the gas-modules operate under distributed control: each gas-module communicates continuously with the others to coordinate workload, balance performance, and assign functions dynamically in real time.

DIRECT COUPLING TO SOLAR PV – THE XINTC WAY

XINTC electrolyser systems are specifically engineered for direct DC coupling to photovoltaic (PV) power sources, without the need for conventional power electronics, such as inverters, DC/DC converters and MPPT optimisers, or for battery storage systems.

Instead of converting solar energy through intermediate stages, PV panel strings are connected directly to the DC busbar within the Power & Control Module (PCM). This simplified architecture reduces both the capital and the operating expenditure for power conversion equipment and avoids the conversion losses associated with conventional AC systems.

Each gas-module pair is equipped with a custom-designed printed circuit board (PCB) and embedded control software that enables real-time on/off switching in response to fluctuations in solar input. As a result, the gas-modules themselves perform the role of a **Maximum Gas Production Tracker (MGPT)**, an innovative alternative to conventional MPPT systems.

Key advantages

- No need for inverters, DC/DC converters, or batteries.
- Ultra-fast response to intermittent power from PV.
- Higher hydrogen output through real-time optimisation.
- Lower system complexity and cost.
- Reduced curtailment losses within the agreed design and operating limits.

This direct-coupled configuration is ideally suited for off-grid or grid-constrained environments and enables efficient and reliable hydrogen production wherever solar power is available.

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

SYSTEM COMPOSITION

Component	Description
PCM (Power & Control Module)	Contains power electronics and control system for AC, DC or AC and DC power supply.
SPM (Solar Power Module)	Contains power electronics and control system for DC power supply.
GPM (Gas Production Module)	Houses gas-modules, water treatment, electrolyte, and post-treatment units.
HSM (Hydrogen Storage Module)	Integrated low-pressure storage up to 10,000 m³.
CPM (Compression & Purification Module)	Optional module for ISO 14687:2025 Grade D hydrogen at 12 bar(g).

POWER & CONTROL MODULE (PCM) + GAS PRODUCTION MODULE (GPM)

A complete XINTC electrolyser system consists of two integrated components: the **Power & Control Module** (PCM) and the **Gas Production Module** (GPM). The PCM contains the power electronics and system control infrastructure, while the GPM houses the gas-modules, water treatment unit, electrolyte system, and gas post-treatment equipment. These two modules are interconnected and function as a single, inseparable unit. The GPM produces hydrogen at grade 2.5 purity (99.5% dry gas) with an outlet pressure close to atmospheric (< 0.25 bar(g)).

Performance basis: the values in this sheet are stated at system level. Values stated for the GPM do not constitute simultaneous guarantees of output, purity and pressure at the outlet of the CPM. Guaranteed performance criteria apply only where they are expressly identified in the project-specific specification and in the FAT and SAT protocols, which also record the reference conditions, measurement boundaries, treatment of auxiliary and standby consumption, tolerances and test methods.



Specifications PCM				
Power supply	**DC power**	Nominal 380–480 VDC. Solar string MPPT target to busbar 430–440 VDC. Open circuit voltage 550 VDC (maximum).		**A**
	AC power	Three-phase 400 VAC (+/- 10%), 50/60 Hz.		
Compartments	**Power electronics**	**DC power only**	No DC/DC converters required. Solar panel strings are connected directly to the DC busbar. Blocking diodes required on each solar panel string.	

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

Specifications PCM				
		AC power only or **AC + DC power**	AC/DC rectifiers (300/400 kW each) based on adjustable IGBT technology with galvanic isolation, designed to convert the external AC voltage to internal DC voltage, with THDi below 5%. Includes power distribution station and MCCB.	
	System control	Equipped with HMI touchscreen, Modbus RTU interface to the XINTC Gateway unit at Customer's site, UPS, safety control systems and comprehensive local data logging. In the event of a critical incident, all safety systems remain active for a minimum of 24 hours.		
Enclosure	**Shipping container**	Customised and compartmentalised 20 ft high-cube container, finished in RAL 7035 with C3 corrosion protection and external signage. Optional C5 coating.		
	Gross weight	< 10,500 kg.		
Accessibility	**Power electronics**	Accessible via 2 × hinged doors at the end.		
	System control	Accessible via a hinged door on the longitudinal side (front).		
Power consumption	**Connection**	Via existing cable entry on the longitudinal side (back).		
	Standby	Cold standby approx. 0.5 kW. Hot standby maximum 26 kW, including forced ventilation.		
Safety	Shielding, emergency switches, warning lights, circuit breakers, temperature control, fuses, voltage control, air-tight cable entries, early fault detection.			
Ambient temperature and heat control	**Standard**	5 °C to 35 °C. Forced air cooling by means of redundant mechanical ventilation.		
	External Cooling Option	Up to 55 °C. Additional thermal insulation and internal heat exchangers for external cooling medium.		**C**

A	**DC POWER SUPPLY**
	Photovoltaic (PV) panels are directly connected to the Power & Control Module (PCM) of the XINTC electrolyser system, eliminating the need for MPPT optimisers, DC/AC or DC/DC converters, and battery storage systems. Each gas-module pair features a custom-designed PCB and integrated control software, enabling real-time on/off switching in response to fluctuations in solar input. As a result, the gas-modules function as a Maximum Gas Production Tracker (MGPT), replacing conventional MPPT systems. This results in a simpler, more efficient and more cost-effective system architecture.

Specifications GPM		
Gas production	**Hydrogen**	Purity 99.5% dry gas (grade 2.5). Outlet pressure < 0.25 bar(g).
	Oxygen	Internally diluted to safe concentrations before being released to the atmosphere.
Gas-module	**Input power**	Nominal 5 kW. Peak power 6.5 kW.
	Weight	< 21 kg.

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

Specifications GPM			
	Working temperature	Approx. 45 °C (55 °C maximum).	
	Life expectancy	Designed for a service life of 10 years, after which replacement of the gas-modules may be required.	
	Degradation	During the Degradation Period of 82,800 operating hours or ten (10) years, whichever ends first, degradation does not exceed 5% under normal operating conditions and in climatic conditions comparable to those prevailing in the central Netherlands, being the inland part of the Netherlands outside the coastal zone (the "Standard Conditions"), or 9.5% where the climatic or operating conditions at the Site deviate from the Standard Conditions, provided that the gas-modules are maintained in accordance with the Manuals and XINTC's prescribed maintenance schedule. Degradation is the increase in specific energy consumption (kWh/kg H_2) relative to the reference value recorded at the SAT, determined in accordance with the Warranty Conditions.	
Section	Deploying 30 collaborating gas-modules | 15 pairs.		
	Input power	Nominal 150 kW. Peak power 200 kW [with solar or solar + AC].	
	Production	Nominal 62 kg/24h. Peak 3 kg/h [with solar or solar + AC].	
		Nominal 29 Nm^3/h. Peak 36 Nm^3/h [with solar or solar + AC].	
System | full container	Deploying 240 collaborating gas-modules | 120 pairs.		
	Power installed	Nominal 1,200 kW. Peak power 1,600 kW [with solar or solar + AC].	
	PV utilisation factor solar DC	> 0.99, defined as the ratio of the real power absorbed by the electrolyser(s) to the real power available from the solar field. With solar DC coupling, power thresholds and curtailment losses are minimal. The installed peak power of the system is matched to the installed peak power of the solar field.	
	Production	Nominal 495 kg/24h. Peak 26 kg/h [with solar or solar + AC].	
		Nominal 229 Nm^3/h. Peak 289 Nm^3/h [with solar or solar + AC].	
	Operational dynamics	Turndown ratio 120:1 (approx. 0.83%–100%) based on a full system of 8 sections (1,200 kW nominal).	
	Water supply	Specific water consumption approx. 10 l/kg, approx. 0.9 l/Nm^3.	
		Nominal water intake approx. 11–13 l/kg depending on water quality.	
		Water inlet pressure 2–6 bar(g) without a softening stage, 3–6 bar(g) where a softening stage is installed.	
		Inlet conductivity < 1,500 µS/cm, TDS < 1,000 mg/l, acidity < 0.1 meq/l, no dissolved chlorine (Cl2).	B
		Inlet temperature 5–30 °C.	
	Power consumption	Depending on system configuration, power source, load profile, ambient conditions, and operational dynamics, energy consumption ranges from 52 to 62 kWh/kg.	

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

Specifications GPM			
	Average specific energy consumption	AC power at nominal load 58 kWh/kg at full system level. DC power at nominal load 58 kWh/kg at full system level. DC power at peak load 62 kWh/kg at full system level.	
	Startup time	Hot startup time 0–100%: approx. 60 s (electrolyte > 35 °C).	
		Cold startup time 0–100%: approx. 360 s (ambient > 5 °C).	
	Shutdown	100–0%: approx. 10 s.	
	Operational flexibility	0–133% with solar DC only or solar DC + AC; 0–100% with AC power only.	
Enclosure	**Shipping container**	Customised 40 ft high-cube container with liquid-tight floor, finished in RAL 7035 with C3 corrosion protection and external signage. Optional C5 coating.	
	Gross weight	< 19,000 kg.	
Compartment	**Production compartment**	Open interior layout with gas-modules positioned on either side of a central walkway. Configurable from a minimum of 2 sections to a maximum of 8. Power is supplied via an axially hinged DC busbar. Auxiliary equipment, such as the RO unit, buffer tank, electrolyte unit, interchangeable filters, and gas treatment unit, is located at the accessible end of the container.	
Accessibility	Accessible through two hinged doors at the end.		
Power consumption	**Standby**	Hot standby approx. 15–25 kW depending on ambient temperature, including maximum 5 kW for forced ventilation.	
		Cold standby maximum 10 kW.	
Safety	Shielding, emergency switches, warning lights, circuit breakers, overpressure protection, temperature control, level control, fuses, voltage control, air-tight cable entries, hydrogen detection sensors, early fault detection.		
Noise level	< 85 dB(A) at 5 m distance under full load conditions.		
Ambient temperature and heat control	**Standard**	5 °C to 35 °C. Forced air cooling by means of redundant mechanical ventilation.	
	External Cooling Option	Up to 55 °C. Additional internal heat exchangers and external cooling medium.	**C**
	Heat Retrieval Option[1]	5 °C to 35 °C, with additional internal heat exchangers for external heat retrieval.	**D**

[1] The GPM Heat Retrieval Option is not available in combination with the External Cooling Option and vice versa.

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

B	**WATER TREATMENT** The water treatment unit comprises a reverse osmosis (RO) unit. A single-stage RO unit is standard; a two-stage RO unit is applied where the quality of the water supplied so requires. An optional softening stage removes hardness ions (Ca2+, Mg2+). The water supplied by Customer shall have a TDS < 1,000 mg/l and shall not contain dissolved chlorine (Cl2); chloride ions (Cl-) are permitted. Where the water contains dissolved chlorine, an activated carbon filter shall be installed in the supply line.

C	**EXTERNAL COOLING OPTION** The external cooling option enables the use of an external cooling medium for the thermal conditioning of the gas-modules and to maintain a controlled internal climate within the GPM. Operating in parallel with the primary cooling circuit, this configuration supports stable process temperatures and electrolyser performance. The interface also allows excess process heat to be transferred to an external heat management system, enabling integration with third-party cooling systems without affecting normal system operation.

D	**HEAT RETRIEVAL OPTION** A secondary heat-retrieval circuit, integrated in parallel with the primary cooling circuit, allows thermal energy to be recovered from the electrolyser system. This option improves overall system efficiency by combining hydrogen production with the use of residual heat. At nominal load, up to 80% of the process heat can be recovered for a secondary application without affecting the performance of the electrolyser. The recovered heat is typically supplied at a flow temperature of 40 °C, suitable for low-temperature industrial heating or district heating. The supply temperature can be raised to up to 80 °C using a heat pump, which is not included in the scope of supply.

SOLAR POWER MODULE (SPM) + GAS PRODUCTION MODULE (GPM)

An XINTC electrolyser system that operates exclusively on DC power consists of two integrated components: the **Solar Power Module** (SPM) and the **Gas Production Module** (GPM). The SPM contains the power electronics and system control infrastructure required for connection to a dedicated DC power source, such as a PV field or a battery energy storage system. The GPM houses the gas-modules, water treatment unit, electrolyte system and gas post-treatment equipment.

The SPM and GPM are physically and functionally integrated and function as a single, inseparable unit. The GPM produces hydrogen at grade 2.5 purity (99.5% dry gas) with an outlet pressure close to atmospheric (< 0.25 bar(g)). With a direct DC connection, a GPM with a nominal rating of 1,200 kW can temporarily operate at up to 1,600 kW (133%).



XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

Specifications SPM				
Power supply	**DC power**	Nominal 380–480 VDC. Solar string MPPT target to busbar 430–440 VDC. Open circuit voltage 550 VDC (maximum).		**A**
Compartments	**Power electronics**	**DC power only**	No DC/DC converters required. Solar panel strings are connected directly to the DC busbar. Blocking diodes required on each solar panel string.	
	System control	Equipped with HMI touchscreen, Modbus RTU interface to the XINTC Gateway unit at Customer's site, UPS, safety control systems and comprehensive local data logging. In the event of a critical incident, all safety systems remain active for a minimum of 24 hours.		
Enclosure	**Shipping container**	Customised and compartmentalised 10 ft high-cube container, finished in RAL 7035 with C3 corrosion protection and external signage. Optional C5 coating.		
	Gross weight	< 7,000 kg.		
Accessibility	**Power electronics**	Accessible via 2 × hinged doors at the end.		
	System control	Accessible via a hinged door on the longitudinal side (front).		
Power consumption	**Connection**	Via existing cable entry on the longitudinal side (back and front).		
	Standby	Cold standby approx. 0.5 kW. Hot standby maximum 2 kW, including forced ventilation.		
Safety	Shielding, emergency switches, warning lights, circuit breakers, temperature control, fuses, voltage control, air-tight cable entries, early fault detection.			
Ambient temperature and heat control	**Standard**	5 °C to 35 °C. Forced air cooling by means of redundant mechanical ventilation.		

HYDROGEN STORAGE MODULE (HSM)

For safe and efficient on-site hydrogen storage, XINTC offers the **Hydrogen Storage Module** (HSM), a fully integrated component of the XINTC electrolyser system. The HSM is a semi-spherical, low-pressure gas holder designed to store hydrogen at near-atmospheric pressure. It features a multi-layer membrane system that contains the hydrogen and shields it from external environmental influences. Redundant blowers continuously ventilate the space between the inner membrane, which contains the hydrogen, and the outer membrane, which acts as a protective barrier. This design is intended to prevent the formation or accumulation of potentially hazardous gas mixtures. The HSM is available in various volume configurations, up to 10,000 m^3, to meet diverse storage requirements, and is equipped with control, monitoring and safety functions that are integrated into the XINTC system architecture.

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global



Specifications HSM		
Membrane		Two-layer, double-sided PVC-coated polyester fabric with antistatic properties, low permeability, and resistance to UV, microbial growth, abrasion, and biogas. Flame retardant rated B1 in accordance with DIN 4102.
Capacity		Volumes: 150 m^3; 400 m^3; 1,000 m^3; 1,500 m^3; 2,000 m^3; 5,000 m^3; 10,000 m^3.
Power supply	**AC power**	Three-phase 400–440 VAC, 50/60 Hz.
Pressure	**Inlet**	10–25 mbar.
	Outlet	< 25 mbar.
Noise level	< 60 dB(A) at 5 m distance from the forced air blowers.	
Foundation	**Sphere size**	150 m^3: Ø8.4 m; 400 m^3: Ø11.6 m; 1,000 m^3: Ø15.7 m; 1,500 m^3: Ø17.9 m; 2,000 m^3: Ø19.7 m; 5,000 m^3: Ø26.7 m; 10,000 m^3: Ø33.7 m.
	Concrete size	Square, with a side length of at least the sphere diameter + 2 m.
	Anchoring	Mechanical membrane-seal anchoring system, installed on concrete foundation using stainless steel flanges.
Power	**Connection**	Via control cabinet.
System control & safety	Hydrogen gas detector, load cells, volume level sensor, safety relief valve, pressure-adjustable vent, inspection window, pressure transmitter, forced air (safety) ventilation by means of redundant mechanical ATEX air blowers.	
Ambient temperature	-20 °C to 55 °C.	

COMPRESSION & PURIFICATION MODULE (CPM)

For applications requiring higher hydrogen purity and increased outlet pressure, the grade 2.5 hydrogen (99.5% dry gas) stored in the HSM at near-atmospheric pressure can be upgraded to fuel cell quality in accordance with ISO 14687:2025 Grade D, at an outlet pressure of 12 bar(g), by adding the **Compression & Purification Module** (CPM). The CPM carries out three post-treatment steps: (1) compression, (2) removal of trace oxygen and (3) drying. The CPM is a standardised component of the XINTC electrolyser system and is configured for a nominal system capacity of 1 to 1.2 MW. The design avoids hydrogen losses: the hydrogen used to regenerate the PSA/TSA drying vessels is recovered and recycled within the system.

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global



Specifications CPM		
Gas processing	**Hydrogen**	At 229 Nm^3/h, ISO 14687:2025 Grade D at 12 bar(g) outlet pressure.
Power supply	**AC power**	Three-phase 400–440 VAC, 50/60 Hz. 160 kW installed (peak) power.
Compartments	**Compression and purification compartment**	Low-maintenance two-stage liquid ring compressor (LRC) skid, deoxidation unit (DEO) with water knock-out, proprietary PSA/TSA drying unit, output gas flow rate measurement, output gas purity measurement.
	System control compartment	Equipped with HMI touchscreen, Modbus RTU interface to the XINTC Gateway unit at Customer's site, UPS, safety monitoring, signalling and local data logging. In the event of a critical incident, all safety systems remain active for a minimum of 24 hours.
Enclosure	**Shipping container**	Customised and compartmentalised 20 ft high-cube container, finished in RAL 7035 with C3 corrosion protection and external signage. Optional C5 coating.
	Gross weight	< 9,000 kg.
Accessibility	**Compression and purification**	Accessible through double hinged doors at both ends.
	System control	Accessible via a hinged door on the longitudinal side (front).
Power	**Connection**	Via existing cable entry on the longitudinal side (back).
	Standby	Cold standby (frost protection and system electronics) approx. 3 kW. Hot standby (recycle mode) at full power.
	Consumption	Approx. 4 kWh/kg at nominal load.
Heat control	Forced air cooling by means of a speed-controlled mechanical ventilation system.	
Safety	Shielding, emergency switches, warning lights, circuit breakers, temperature control, fuses, voltage control, air-tight cable entries, early fault detection.	
Ambient temperature and heat control	**Standard**	-10 °C to 45 °C. Active chiller.
	Optional	Up to 55 °C. Adjustment of the active chiller.

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

HAZARDOUS AREA CLASSIFICATION

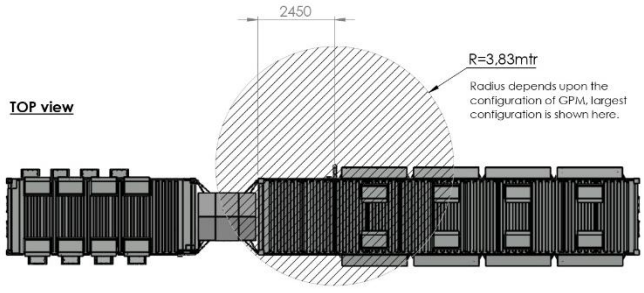
In accordance with Directive 1999/92/EC (ATEX workplace directive) and EN IEC 60079-10-1, the XINTC electrolyser system modules, including the Power & Control Module (PCM), Solar Power Module (SPM), Gas Production Module (GPM), Hydrogen Storage Module (HSM) and Compression & Purification Module (CPM), do not constitute hazardous areas under normal operating conditions. Consequently, these modules are not subject to ATEX zoning.

A hazardous area classification is applied solely to defined pressure relief discharge locations, where an explosive hydrogen-air atmosphere is not likely to occur in normal operation and, if it does occur, will persist for a short period only. These locations are:

- Pressure relief vent outlet on the GPM.
- Pressure relief vent outlets on the HSM, including the buffer dome and manifold pipe connection pit.
- Pressure relief vent outlet on the CPM.

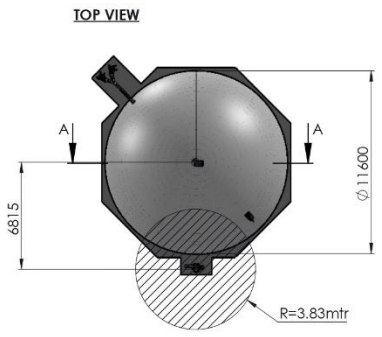
These discharge areas are classified as Zone 2, gas group IIC, temperature class T1. Equipment installed in these areas shall be suitable for at least category 3G. This classification is based on the characteristics of hydrogen (Gas Group IIC) and a maximum permissible surface temperature of 450 °C (Temperature Class T1). No ATEX zoning applies beyond these locally defined relief vent discharge areas.

The hazardous-area classification set out above is confirmed for each installation by a documented, project-specific assessment that takes into account the installed configuration, release sources, ventilation, interfaces and surrounding equipment. Area classification and equipment marking are stated separately. The applicable EU declaration of conformity, legislation and standards are those in force on the date on which the equipment is placed on the market or put into service. The allocation of responsibilities follows the purchase agreement and its responsibility matrix.

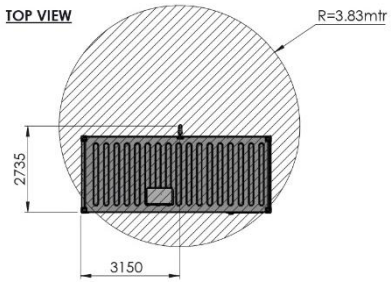


Power & Control Module

Gas Production Module



Hydrogen Storage Module

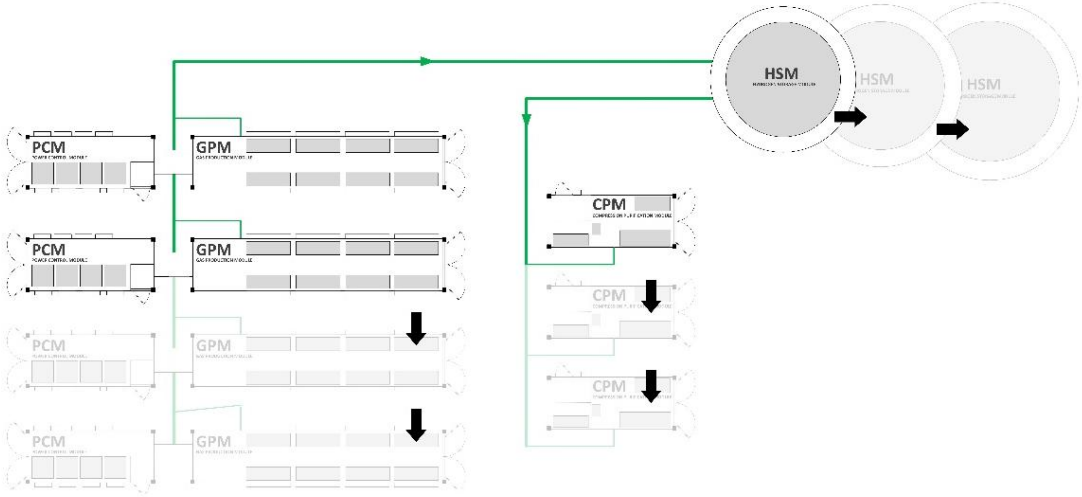


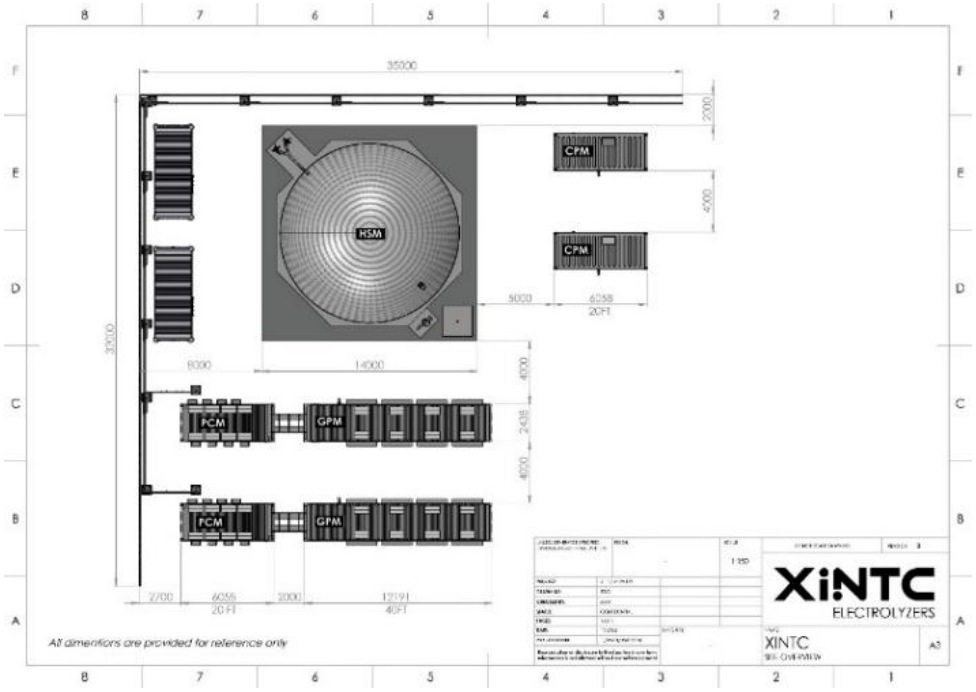
Compression & Purification Module

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

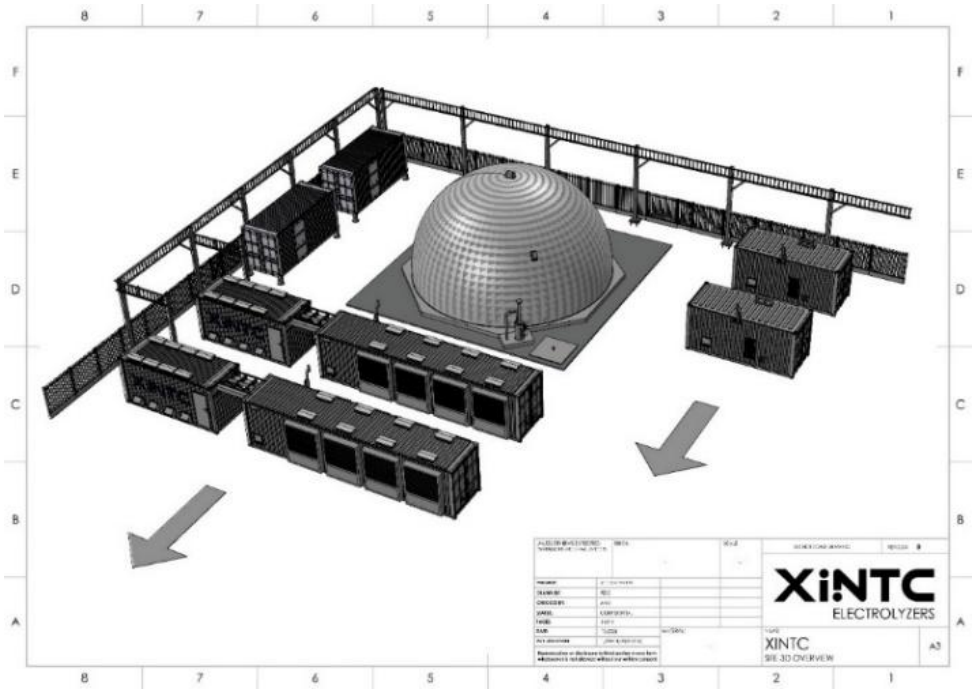
FREE CONFIGURATION & SCALABLE CAPACITY

The system modules are engineered for flexible deployment, enabling reconfiguration or expansion at any stage to meet changing business requirements. Capacity is scaled by adding modules. The integrated software embedded in each system module is built to support future scalability and the seamless integration of additional features. The optimal configuration is determined through a technical and economic assessment, based on Customer's requirements, energy profile, and operational goals.





XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global



BATTERY LIMITS

The electrical connection requirements are specified below. Customer is responsible for the selection and dimensioning of the cables, including cross-section, material and type, taking into account the cable length and the installation method (above or below ground).

PCM	In From	Out To	Specifications
DC (solar) power cables	SITE		4 × Entry Boxes, each: 16 × N and 16 × P DC cables per Entry Box, single core. Each cable: approx. 550 Voc / 425 Vmp[2] / 62.5 A Imp.
AC power cables	SITE		4 × Entry Boxes, each: 3 × AC connection, each 3-phase 400 VAC, 50 Hz, approx. 420 A, PE required; no shielding required.
AC auxiliary power cable[3]	SITE		3P+N+PE, 400 VAC, 50 Hz, approx. 160 A.
Communication cable		SITE	Modbus RTU (RS485).
Safety line	SITE		24 VDC (yellow), single core.
Safety line		SITE	24 VDC (yellow), single core.
Earthing	SITE		4 × earthing points, one at each container corner, connected to the site earthing grid; tinned solid copper rod, 50 mm² / Ø8 mm.

[2] Optimised for every solar system, depending on the type of PV panels with a targeted 425 Vmp. Open circuit voltage not to be exceeded.

[3] If only dedicated DC power is available, the option of a DC/AC inverter is selected. Alternative: external battery.

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

PCM	In From	Out To	Specifications
SPM			
DC (solar) power cables	SITE		4 × Entry Boxes, each: 16 × N and 16 × P DC cables per Entry Box, single core. Each cable: approx. 550 Voc / 425 Vmp / 62.5 A Imp.
Communication cable		SITE	Modbus RTU (RS485).
Safety line	SITE		24 VDC (yellow), single core.
Safety line		SITE	24 VDC (yellow), single core.
Earthing	SITE		4 × earthing points, one at each container corner, connected to the site earthing grid; tinned solid copper rod, 50 mm² / Ø8 mm.
GPM			
Water	SITE		OD16 mm HDPE water pipe coupling with an external 230 VAC, 50 Hz, 16 A power socket for water pipe heat tracing.
Drainage		SITE	Discharge to sewer (open sump) near the system module.
Process water	SITE	SITE	1 inch BSP thread.
Earthing	SITE		4 × earthing points, one at each container corner, connected to the site earthing grid; tinned solid copper rod, 50 mm² / Ø8 mm.
Hydrogen gas		HSM	DN65 PN10 DIN-flange.
Nitrogen gas	SITE		15 mm tube clamp fitting.
HSM			
Power cable	SITE		3P+N+PE, 400 VAC, 50 Hz, approx. 16 A.
Safety line	SITE		24 VDC (yellow), single core.
Safety line		SITE	24 VDC (yellow), single core.
Communication cable		SITE	Modbus RTU (RS485).
Hydrogen gas	GPM		DN65 PN10 DIN-flange.
Hydrogen gas		SITE/CPM	DN100 PN16 DIN-flange.
Earthing			Protective earth (PE).
CPM			
Power cable	SITE		3P+N+PE, 400 VAC, 50 Hz, approx. 350 A; shielded and armoured cable required.
Safety line	SITE		24 VDC (yellow), single core.
Safety line		SITE	24 VDC (yellow), single core.
Communication cable		SITE	Modbus RTU (RS485).

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

PCM	In From	Out To	Specifications
Earthing	SITE		4 × earthing points, one at each container corner, connected to the site earthing grid; tinned solid copper rod, 50 mm² / Ø8 mm.
Hydrogen gas	HSM		DN100 PN16 DIN-flange.
Hydrogen gas		SITE	DN50 PN25 DIN-flange.
Nitrogen gas	SITE		15 mm tube clamp fitting.
Drainage		SITE	Discharge to sewer (open sump) near the system module.

ADDITIONAL INSTALLATION REQUIREMENTS

Placement	The PCM (or SPM) and GPM units are installed in line with each other, maintaining a minimum 2 m clearance. All containerised units must be placed on a level concrete surface compliant with DIN 18202:2019-07, with sufficient load-bearing capacity. The installation site must be freely accessible for both a low-loader and a crane.
Extra Requirements	Based on the outcome of a formal risk assessment, the competent authority (such as the environmental service) may require additional safety measures, such as fencing around the electrolyser installation, CCTV surveillance, or the construction of a concrete block partition wall.

TECHNICAL STANDARDS

Applicable legislation

Module	Machinery Regulation (MR) 2023/1230	EMC Directive (EMCD) 2014/30/EU	RoHS Directive 2011/65/EU	Pressure Equipment Directive (PED) 2014/68/EU	Cyber Resilience Act (CRA) 2024/2847
PCM / SPM + GPM	X	X	X		Modules prepared for CRA
HSM	X	X	X		
CPM	X	X	X	X	

Applied standards

Standard	Title
EN IEC 60204-1:2018	Safety of machinery – Electrical equipment of machines – Part 1: General requirements
EN IEC 62061:2021	Safety of machinery – Functional safety of electrical, electronic and programmable electronic control systems
EN ISO 22734-1:2025	Hydrogen generators using water electrolysis – Part 1: Safety
ISO 14687:2025	Hydrogen fuel quality – Product specification

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

Standard	Title
EN 61000-6-2:2005	Electromagnetic compatibility (EMC) – Generic standards – Immunity for industrial environments
EN 61000-6-4:2007+A1:2011	Electromagnetic compatibility (EMC) – Generic standards – Emission standard for industrial environments
EN IEC 62443-3-3:2019	Industrial communication networks – Network and system security – Part 3-3: System security requirements and security levels
EN IEC 62443-4-1:2018	Security for industrial automation and control systems – Part 4-1: Secure product development lifecycle requirements
EN IEC 60079-10-1:2021	Explosive atmospheres – Part 10-1: Classification of areas – Explosive gas atmospheres
EN IEC 60079-14:2025	Explosive atmospheres – Part 14: Electrical installations design, selection and erection

The complete list of applied standards is included in the EU Declaration of Conformity.

CONSIDERATIONS

Electrochemical Efficiency	Electrochemical conversion within the gas-modules is more efficient at lower power loads (i.e. lower current densities). Although higher loads result in greater hydrogen output, they are accompanied by a slight decrease in efficiency. Therefore, where operationally feasible, installing additional capacity and operating at reduced power levels may enhance overall system efficiency.
System Configuration	Configuring the system with an even number of sections, rather than an odd number, can lead to cost savings, reduced material consumption, and improved energy conversion efficiency under standard operating conditions. Scenario-based calculations are recommended to support well-informed decisions and to evaluate the TCO accurately.

SERVICE & MAINTENANCE

Service and maintenance of an XINTC electrolyser are designed to be straightforward, cost-effective, and minimally disruptive. The system's modular architecture and the use of low-maintenance components, such as the polymer gas-modules designed for 100,000 switching cycles, significantly reduce the need for periodic servicing[4].

Preventive maintenance primarily focuses on routine inspections, software updates, and the timely replacement of a limited number of wear-prone parts such as seals, pumps, and valves. Once per year, a full technical inspection is carried out, including a review of all rotating components and completion of the system maintenance checklist. The electrolyte is to be replaced annually, and the RO filters, subject to the feed water quality, are also expected to require replacement once per year. Similarly, the filters in the air intake ducts of the Gas Production Module should be checked and replaced annually, depending on environmental conditions. Required Software updates, including security updates, are installed on site by XINTC or a service partner, in

[4] Service-life, degradation, OPEX and LCOH figures are indicative unless expressly identified as guaranteed project-specific criteria. The OPEX basis shall state the annual period, reference list prices, included maintenance, consumables and replacement allowances, and the treatment of electricity, water, software fees and system module use charges. Illustrative LCOH scenarios do not amend the purchase price, scope of supply or agreed performance criteria.

XINTC B.V.
Loubergweg 22-24
6961EK EERBEEK
The Netherlands
I www.XINTC.global
E info@XINTC.global

accordance with the Service Level Agreement and Licence Agreement.

Each module records core data, per second per component, in its local data log. The Gateway combines these into system operational data, including alarms, which are made available to Customer's control system. Customer shares the system operational data with XINTC at least monthly, by an agreed method. XINTC uses these data to support predictive maintenance by identifying trends and early warning signals for wear or failure of parts such as sensors, pumps and fans. Where component-level data are required, XINTC reads out the local data log on site, during maintenance or following an error. Thanks to the high level of standardisation, all service tasks can be carried out quickly and uniformly on site. This approach supports high system availability and contributes to a low TCO.

The expected operating expenditure (OPEX) for the electrolyser modules is 1.5% to 2.5% per year of the applicable list prices, expressed as an average indicative value over the full depreciation period of the modules, excluding gas-module exchange after the service life. This figure should be regarded as a guideline only, as the actual OPEX depends on multiple variables, including the utilisation profile (such as operating hours, cycling frequency, and load variability), the prevailing climatic and environmental conditions, and the characteristics of the installation site and electricity supply. The OPEX figure includes a provision for spare parts, as well as the main consumables and routine maintenance activities required over the system's lifetime. Additional determining factors include the costs of consumables and filtration media, local service rates, travel costs, and any applicable on-site service fees. Service and maintenance costs may fluctuate annually and are likely to be affected by local inflation and broader market dynamics.

The service life, degradation, OPEX and LCOH figures in this sheet are indicative, unless they are expressly identified as guaranteed criteria in the purchase agreement. Illustrative LCOH scenarios do not amend the purchase price, the scope of supply or the agreed performance criteria. This does not limit any express warranty or service commitment in the purchase agreement or the Warranty Conditions.