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Safe hydrogen supply at ultra high purity levels

UHP Hydrogen Generator – HG 500

The HG 500 series of ultra high purity hydrogen generators offers high performance and reliable operation even under harsh operating conditions such as in industrial installations. Utilising field proven PEM cell technology, hydrogen is produced from deionised water on demand only. Using a HG 500 instead of high pressure hydrogen cylinders saves money and results in a high level of safety.

The HG 500 ideally complements online GC systems and other type of analyzers to be used for process, emissions and environmental monitoring applications. Due to the ultra high purity grade of hydrogen being generated, the HG 500 allows to operate any type of combustion detectors and even to supply hydrogen as carrier gas for GC applications.

The menu driven user interface and the innovative control software ensures easy setup of the HG 500 as well as operational safety and reliability. Operation of the hydrogen generator can be controlled and monitored remotely using field bus communication via Modbus RTU protocol. Different versions of the HG 500 operate at maximum flow rates between 160 ml/min to 1000 ml/min.

Automatic refill of the internal water tank from an external canister or deionised water system allows unattended operation over long periods of time.

Unique SMARTdry™ technology

Instead of using a desiccant cartridge to be replaced frequently, our premium model of hydrogen generators features unique SMARTdry™ technology for efficient water removal.

This allows the HG 500 series of gas generators to supply hydrogen at consistently high purity levels and provides maintenance free operation and low cost of ownership.

TECHNICAL DATA

General

Enclosure	19" plug-in case
Height	4 height units
Depth	460 mm
Weight	15 kg to 24 kg, depending on version / flow rate
Mounting	designed for cabinet/rack mounting
Ambient temperature	5°C to 35°C
Humidity	5% to 80% relative humidity, non-condensing
EMC	CE-marking, conformity with EMC-guidelines 2004/108/EC
Electrolysis cell	PEM electrolysis cell, does not require caustic solutions to operate (PEM = Polymer Electrolyte Membrane)
Internal water tank	water capacity 1.2 liter
Water removal	SMARTdry™ technology for efficient water removal

Hydrogen specifications

Flow rate / versions	max. 160 / 250 / 400 / 650 / 800 / 1000 ml/min
Outlet pressure	2.0 barg to 10.0 barg
Hydrogen purity	99.9999 % (gas quality grade 6.0)

Instrument supply

Power supply	100 – 240 VAC
Line frequency	50 to 60 Hz
Power consumption	200 W to 800 W, depending on version / maximum flow rate
Water supply	deionised water, ASTM II, >1M Ω , <1 μ s, filtered to <100 μ m automatic water refill from external canister or deionised water system
Water consumption	800 ml/week (24h/7d at hydrogen flow rate of 100 ml/min)

Connections

Hydrogen outlet port	1/8" bulkhead union
Water hose	Quick release push in fitting
Ion exchange cartridge	2 dual connection ports with quick release push in fittings for ion exchange cartridge (allows to replace ion exchange cartridge without operating interruption)

Operation

Setup	Menu driven user interface for manual setup and operation
Display	Large and back-lighted LCD display to indicate generator status, outlet pressure, hydrogen flow rate and operation mode
Data entry	Capacitive touch keys
Operation modes	Local control or remote control via Modbus RTU

Communication

Communication ports	2 x RS-485 for field bus communication via Modbus RTU
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