

## FID. HiQ<sup>®</sup> Hydrogen-Air FID Gas Generator.



**Background** The flame ionisation detector (FID) is one of the most used detectors for gas chromatography (GC). The FID is well suited for analysis of hydrocarbons and other easily flammable components. As they are very sensitive to these components, and response tends to be linear across a wide range of concentrations, maintaining consistent purity of the hydrogen fuel is a must. However, laboratory location and safety concerns sometime conflict with the storage and use of high pressure hydrogen cylinders. HiQ<sup>®</sup> hydrogen laboratory gas generators are the economical alternative.

**Description** The HiQ<sup>®</sup> Hydrogen-Air FID generator is a combination all-in-one hydrogen and zero air generator employing the latest in Polymer Electrolyte Membrane (PEM) technology for on-site production of gaseous pure hydrogen. No caustic solution is needed, and the small contained volume (<40 ml) makes the HiQ<sup>®</sup> Hydrogen Air FID generator safe for operation in any laboratory. Only distilled or deionised water is required to provide long-term operation and a no maintenance static dryer has replaced the molecular sieve design, allowing the HiQ<sup>®</sup> Hydrogen-Air FID generator to produce high purity hydrogen and zero air with total hydrocarbon (THC) levels < 0.1 ppm in a trouble free operational environment. The log file can easily be downloaded to a PC via the USB interface to make the traceability and diagnostics more efficient.

With a small footprint of 16 x 35 cm the HiQ<sup>®</sup> Hydrogen-Air FID generator saves space. It is compatible to all major voltages and power supplies.

### Functioning Hydrogen Principle

The internal pump forces distilled water to flow from the external water reservoir to the PEM electrolysis cell; mixed with oxygen, a by-product of electrolysis, the water returns to the reservoir. On the way to the cell, the water is filtered, deionised through a special cartridge and its conductivity measured. The humid hydrogen goes through the membrane and is dried by the gas liquid separator and then by a static dryer. The hydrogen pressure level is measured and regulated at the set pressure by a feedback of current to the cell.

### Functioning Air Principle

Supplied air is initially passed through highly efficient pre-filtration to remove both moisture and particles greater than 5 microns. After filtration, the regulated air is channelled into a stainless steel catalyst chamber to remove background hydrocarbons and carbon monoxide. The chamber is filled with a highly efficient platinum + palladium catalyst which has been heated to very high temperature to ensure final hydrocarbon removal to less than 0.1 ppm. An additional high-grade filter is also used to remove 99.99% of particles greater than 0.5 microns.

### Laboratory Applications

With its small size, trouble free operational environment, low maintenance drying system and dual gas supply ability the HiQ<sup>®</sup> Hydrogen-Air FID generator is the preferred source of hydrogen and air fuel gas for GC-FID detectors and THC analysers. With its low hydrocarbon content (less than 0.1 ppm as well in hydrogen as in air) the HiQ<sup>®</sup> Hydrogen-Air FID generator will give excellent and stable baseline to any chromatograph on the market.

Specifications

<b>HiQ® H<sub>2</sub>-Air-FID-100</b>	H <sub>2</sub> Flow rate: 100 Nml/min	Air Flow rate: 1500 Nml/min
<b>HiQ® H<sub>2</sub>-Air-FID-160</b>	H <sub>2</sub> Flow rate: 160 Nml/min	Air Flow rate: 1500 Nml/min
<b>HiQ® H<sub>2</sub>-Air-FID-250</b>	H <sub>2</sub> Flow rate: 250 Nml/min	Air Flow rate: 1500 Nml/min

External floor water tank 5L + water tubing and 1 deionisation cartridge included

Purity:	<b>Hydrogen:</b> 99.999% (5.0), hydrocarbon free <0.1 ppm <b>Air:</b> Hydrocarbon free <0.1 ppm
Delivery pressure:	<b>Hydrogen:</b> 20-155 psig/1.4-10.5 barg <b>Air:</b> Up to 7 barg (100 psig) (depending on inlet pressure)
Particle filtration level:	<0.1 µm
Electrolysis cell:	Solid Polymer Membrane type (PEM)
Water:	Deionised or distilled <10 µS conductivity
Drying system:	Static dryer (no maintenance)
Safety:	Auto shut-off / low internal volume of H <sub>2</sub> gas (<40 ml)
User interface:	Set points, system status, user parameter / Touch screen / LCD graphic display
Remote command:	USB / download of the log file possible
Dimensions (cm):	16 x 35 x 39 (W x D x H) (without external water tank)
Shipping Dim (cm):	41 x 51 x 50 (W x D x H)
Net weight (kg):	15 kg (all models)
Shipping weight (kg):	19 kg (all models)

Power consumption (Watt):	<b>Model 100:</b> 360W	<b>Model 160:</b> 410W	<b>Model 250:</b> 400W
Power requirements:	230V/50Hz - 230V/60Hz - 115V/60Hz - 100V/60Hz		

Options and Accessories

Table water tank 5L (7 x 33 x 33) instead of the external floor water tank
Additional 5L floor water tank (14 x 18 x 40)
Additional 10L floor water tank (18 x 22 x 47)
Additional 5L water tank, fully equipped, 1.5m tubes
Additional 10L water tank, fully equipped, 1.5m tubes

HiQ® Hydrogen Air FID generator in principal

