

# Comm Pac™ Backup/UPS

*The Hydrogen and Fuel Cell stationary backup power solution*



- Unlimited backup operation time\*
- Reliable
- Compact
- Indoor use\*\*
- Silent and clean operation
- Low and easy maintenance

\* with refuelling

\*\* with adequate ventilation



The Air Liquide - Axane hydrogen energy offer, a fully integrated power solution, as backup/UPS or primary power\*.

Reliable and suitable for indoor and outdoor use, COMM PAC Backup/UPS is an extended backup power source.

\*see our specific data sheet.



## The Hydrogen and Fuel Cell stationary backup power solution

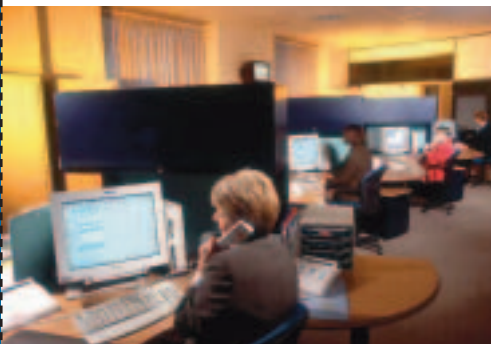
An integrated energy offer combining Fuel Cell and Hydrogen as a Backup/UPS solution for your critical application

Air Liquide, world leader in industrial gases, combines its expertise in hydrogen with the know-how of Axane, its Fuel Cell subsidiary, to propose a turnkey offer including the following services:

- Fuel Cell + Hydrogen Installation
- Maintenance and remote access supervision
- Hydrogen safety studies and training
- Energy optimisation

COMMPAC Backup/UPS is an innovative technology designed for an extended backup solution, reliable and suitable for indoor\* and outdoor operation. In combination with hydrogen logistics, operation time can be extended as required. The integrated Air Liquide/Axane energy offer provides customers with a gas logistics adapted to a reliable backup energy supply, 24h/day, all year round.

\*with adequate ventilation



### Technical specifications

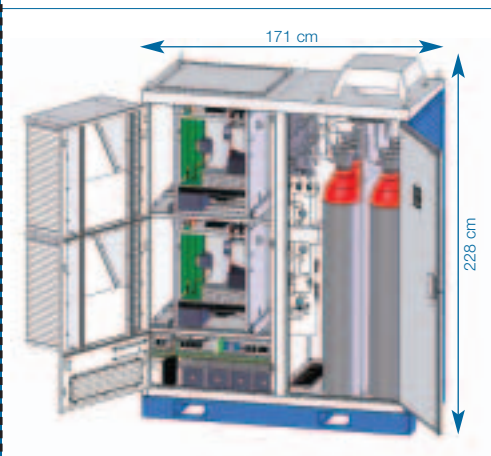
- Power range . . . . . From 0.5 to 5 kW (1 or 2 modules)
- Overload capacity . . . . . From 5 to 10 kW (depending on the configuration)
- User voltage . . . . . 110 V AC / 60 Hz or 230 V AC / 50 Hz  
48 V DC - Battery charger mode 48 VDC
- Output sinusoid . . . . . THD<sup>1</sup> < 5% with resistive load
- Electrical protection . . . . . surge protection and short circuit
- Sound pollution . . . . . 45 dba at 1 meter
- Weight w / o storage . . . . . 600 kg
- Dimensions . . . . . 115 x 170 x 210 cm
- Maximum power . . . . . Instantaneous
- Storage temperature . . . . . -55°C to +70°C
- Operating temperature . . . . . -20°C to +45°C
- Maximum altitude . . . . . Up to 3 000 meters operating
- EC label . . . . . in process
- UL/CLSA labeling . . . . . in process

### Standard product operation time

(based on 6 cylinders of 8,5 Nm<sup>3</sup> at 200 bars each)

- at 5 kW: . . . . . for 15 hours
- at 2,5 kW: . . . . . for 30 hours
- at 1 kW: . . . . . for 72 hours
- at any power<sup>2</sup> . . . . . self-sustainability over several weeks or several months with external reserve or restocking

1 Total Harmonic Distorsion - 2 in the power range from 0,5 to 5 kW



### Fuel Cell Advantages

	Fuel Cell	Genset	Fuel Cell Advantages
Noise	***	*	• Silent system for night or urban use with no discomfort to end user.
Polluting emissions	***	*	• Emissions: water and heat, allowing indoor use.
Vibrations	***	*	• No vibration that can disturb human activity.
Reliability	**	*	• Chemical reaction simple, no moving parts.
Maintenance	**	*	• Maintenance every 2000 hours, no oil change operation.
Operation	**	*	• High efficiency remains stable across its full range of operation. • Clean process: no emissions, no grease... • Hydrogen fuel doesn't degrade with time.

	Fuel Cell	Batteries	Fuel Cell Advantages
Compactness Weight and Volume	**	*	• Less Weight and volume for a given amount of energy. An advantage in many uses: urban use, in vehicle, boats, etc...
Life time	***	*	• No charge/discharge cycles limitation. • No impact of temperature on life time. • No sudden life end, easy cell maintenance.
Operating and storage temperature	**	*	• Large temperature range, efficiency is not affected by low operating and storage temperature.
Energy loss	***	*	• No inherent energy discharge.
Energy recharge	****	*	• Recharge is instantaneous by simply replacing a H2 bottle.
Predictable time operation	****	*	• Indication of remaining time of operation.



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