

S-Series is optimised to maximise reliability, life-time and efficiency - also in sub-zero temperatures. The fuel cells in the S-series are available in the power ratings 50, 500, 1000 and 2000 W. Fully integrated power units based on cutting-edge technology, innovative solutions and fundamental understanding.

By combining fuel cell units (power) and hydrogen cylinders (energy) economical systems can be configured for a specific application.

Fuel cells – An alternative if you have low power needs (< 10 kW) and large energy needs (> 10 kWh).



Advantages

- Maintenance free
- No self-discharge
- Known energy capacity
- Cold tolerant
- Heat tolerant
- Load following output
- Longevity
- Low operation cost
- Compact
- No waste problems or costs
- No emissions

Applications

- Telecom backup power
- Radio communication relay stations
- Emergency transmitters
- Military sensor equipments
- Uninterruptible power supplies (UPS)

Technology

- Control system with optional Internet capabilities and alarm functions via SMS
- Control system is remote upgradeable
- Components optimised for longevity and low power consumption
- Liquid cooling for longevity
- Low pressure air feed for higher efficiency
- Internal humidification for longevity
- CE compliance
- 1 year warranty

Model program

Fuel cell	S-50	S-500	S-1000	S-2000	S-2000 Telecom
Nominal power	50 W	500 W	1000 W	2000 W	2000 W
Current	0-5 A	0-50 A	0-50 A	0-50 A	0-50 A
Voltage output (raw)	12-18 VDC	12-18 VDC	24-36 VDC	48-72 VDC	-57 to -43 VDC
Dimensions (mm)	471x281x413 (19" width, 6 U height)		471x281x513 (19" width, 6 U height)		
Weight (kg)	20	22	28	40	40
Operating time 12-pack ¹	100 days	10 days	5 days	60 h	60 h

¹ At nominal power, 12-pack of standard cylinders, pressure 200 bar (e.g. AGA item no. 1541)

Fuel (hydrogen)	4-pack	12-pack	24-pack
Energy	40 kWh	120 kWh	240 kWh
Energy @ 48 VDC	800 Ah	2400 Ah	4800 Ah

Performance

Efficiency (at nominal power)	47 %
Efficiency (at 20 % load)	48 %
FC Start-up time ² (>0 °C)	5-120 s
FC Start-up time ² (<0 °C)	1 min - 15 min
Transient behaviour 20%-100% load	< 0,1 s
Power to load at black-out	Seamless with battery

¹ e.g. AGA item no. 1511 or Air Liquide item no. 1070

² Actual start-up time depends on conditions and application. Contact Cellkraft for more information.

Technical data

Fuel	
Quality	Industrial grade hydrogen
Supply pressure	3-8 bar
Connection	6 mm Swagelok®
Exhaust	
Composition	Humid air
Temperature	Typical 30-50 °C
Operating conditions	
Ambient temperature in use	-33 till +45 °C
Ambient temperature in storage	-40 till +60 °C
Ambient humidity in use	Non condensing
Ambient humidity in storage	Non condensing
Electrical interface	
Power	Screw terminals (16 mm ²)
RS 232	9 pin female D-sub connector (wiring defined in manual)
Conformance	
General	CE-certification (EMC 89/336/EEC, LVD 93/68/EEC)
Power supply interface*	ETSI EN 300 132-2
Environment*	ETSI EN 300 019-1-3

*S-2000 Telecom

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May -08 ver: Eng. S.28

Ordering key

S - I II - 0 0

I	Power
	0 50 W
	1 500 W
	2 1000 W
	3 2000 W
4 2000 W telecom	

II	Cold start options
	0 0 °C
	1 -15 °C
	2 -20 °C
3 -30 °C	

An example:

S - 1 1 - 0 0

This is the key for the S-500 with cold start capability from -15 °C.

Price

Model	1 unit	30 units
S-50	Contact Cellkraft	
S-500	220 000	80 000
S-1000	350 000	110 000
S-2000	480 000	150 000
S-2000T	480 000	150 000

All prices are in SEK (1 SEK ≈ 0.15 USD ≈ 0.11 EUR). Additional charge for cold capability applies. Ask fore more information.

System integration



Cellkraft fuel cells are modular and can be connected in series or in parallel. The S-Series fuel cells are developed to be easily integrated with AC-DC, DC-DC, DC-AC converters or batteries.

Cellkraft offers complete system solutions for your demand.