



Electrical and Manufacturers Specification

FOR GENERAL RELEASE

Draft Specification – Fuel Cell System (FCS)
V1.0 – 15 December 2002

ELECTRICAL SPECIFICATION

GENERAL DESCRIPTION

The FCS is to be installed outdoors under a 'carport', specification to be decided by BCH

The FCS will comprise the fuel cell, control system, batteries, circuit breakers and other ancillary equipment housed in a metal rack. The batteries and power distribution components (circuit breakers, DC/DC converter and AC inverter, will be housed at the bottom of the rack.

Cooling of the FCS will be by natural convection and internal forced ventilation of ambient air.

The FCS design will incorporate provision for the thermal protection of the fuel cell and batteries.

When operating under maximum load the estimated noise level should be less than 60 dBA measured at 1 metre from any point around the unit.

ELECTRICAL

DC Supply Output

The DC output will be –48Vdc nominal, controlled by 2 DC/DC converters. The range of variation will be –40.5Vdc to –60Vdc measured on the load side of the circuit breakers.

DC overvoltage protection will be included

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Load Details

The FCS will be equipped with 2 x 6 module Alkaline stacks providing 4.4kW nominal load. 4 x 12VDC 100 Ah batteries will provide additional load at peak demand of 4.8kW for 1 hour. The maximum load to be applied to the system will be 9kW

General Controller Information

The following indicators will be visible from the outside of the FCS.

DC voltage (V) - Digital

DC current (A) - Digital

Power output (kW) – Digital

KOH temperature - Digital

FCS supplying load – LED

FCS fault – LED/Digital showing fault code

H2 supply pressure – Analogue gauge

N2 supply pressure – Analogue gauge

The remainder of the FCS operating parameters will be displayed on the internal control panel.

MECHANICAL SPECIFICATION

Enclosure Design

The enclosure complies with the requirements of the following:-

NEMA

IEC 529, IP65

And the following standards:-

UL 508

CSA

Estimated total weight of the FCS will be approx 250Kg (plus batteries)

Shipping weight of the enclosure will be approx 350Kg

Overall Dimensions of the enclosure are H1800mm x D900mm x W1500mm

Enclosure finish will be ANSI/ASA 61 (Grey enamel)