

REACTANT GAS HUMIDIFIER

A COMPONENT OF FIDERIS'S FUEL CELL TEST SYSTEM™

An Advanced Testing System for Fuel Cell Development



- Flash Evaporation Provides Real Time Control of Humidification
- Independent Control of Humidification for Fuel and Oxidant Gases
- User Specified Water Evaporation Rate
- Temperature Controlled Receptacles for Heated Gas Transfer Lines
- System Wide Control of All Fideris Fuel Cell Test System Equipment Using FCPower™ Software

MODEL FCTS H™
FUEL CELL TEST SYSTEM HUMIDIFIER™

fideris
innovative solutions

REACTANT GAS HUMIDIFIER

A MEMBER OF FIDERIS'S FUEL CELL TEST SYSTEM™ FAMILY

A Compact, Easy to Use, High Capacity, Reactant Gas Humidification System

FEATURES:

- Reactant gases heated only as necessary to entrain the desired quantity of water vapor
- Water transfer rates of up to 24 mL/min
- Use water reservoir (included) or connect directly to house deionized water supply
- Water handling system is compatible with deionized water
- System designed for reactant gas pressures up to 50 psig
- Reactant gas wetted material is 316 stainless steel
- Designed for ease of diagnostics and maintenance
- Optional toxic and combustible gas detectors available
- Provides temperature control for heated gas transfer lines (transfer lines not included)
- System wide control of all Fideris FCTS™ equipment using FCPower™ Software

Note: For low reactant gas flow rates (less than 10 slpm) please consider Fideris's Bubble Humidifier.

OPERATION DESCRIPTION:

Fideris's gas humidification unit is a component of the Fuel Cell Test System™ that has been developed to address all aspects of fuel cell research, testing, and utilization. In contrast to bubble type, or membrane based humidifiers, Fideris's evaporator based humidifier allows a *user-defined* amount of water vapor to be entrained in the reactant gas streams. Overheating of the gas stream is eliminated since the gas is only heated to the temperature required to take up the specified amount of water. This technique provides the user with the ability to deliver any amount of water to the fuel cell, up to the maximum carrying capacity that may be entrained in the reactant gas stream.



SPECIFICATIONS:

Gas Handling

Humidifiers:

Flash evaporation directly into each reactant gas stream

Back Panel Connections

Power Inlet:

NEMA twist lock L6-30P plug with 10' cord

Gas Inlets:

3/8" FNPT

Gas Outlets:

3/8" FNPT

Data Connection:

RS-485 DB9

Thermocouples:

Mini Type K

Gas Transfer Line Heater Receptacle:

IEC 320

Gas Overpressure Release:

1/4" MNPT

Electrical Requirements

Voltage:

208 VAC (220/240 optional)

Frequency:

60 Hz (50 Hz optional)

Current:

22 Amps

Circuit Rating:

30 Amps

Installation Requirements:

Clearance for Operation:

Back: 6", Front: 8", RH: 6", LH: 6", Top: 0"

Gas Transfer Line Output

Voltage/Frequency:

Same as system input

Max Current:

3.5 Amps each

Thermocouple Input:

Mini Type K

Physical Characteristics

Dimensions:

20" D x 18.5" H x 7.56" W

System Weight:

55 pounds without water

Water Reservoir Capacity:

4.25 liters

Operating Environment:

40° to 100° Fahrenheit;
85% RH

Cabinet Rating:

Indoor

Operating Parameters

Max. Gas Pressure:

50 psig

Max. Water Delivery Rate*:

Fuel Gas:

6 or 12 mL/min

Oxidant Gas:

6, 12, or 24 mL/min

*Depending upon model.

Specifications subject to change.

This equipment may be protected by one or more of the following patents:

U.S. Patent # 5,512,831, 6,324,042, 6,383,671, 6,792,320.

Additional patents pending.

Fuel Cell Test System, FCTS, Fuel Cell Test System Humidifier, FCTS H, FCPower, and Fideris are trademarks of Fideris Incorporated.

For sales, literature, or technical information regarding Fideris's Fuel Cell Test Systems, please contact:



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