

Smart2 DM Series

DMFC Single Cell Fuel Cell Test System



- *Fully Integrated Compact Size*
- *Suitable for DMFC single cell*
- *Temperature measurement and control*
- *Watch-dog function*
- *Fully automatic by PC control*
- *Accurate electronic load for fuel cell application*
- *Stoichiometric control is available*
- *Piston pump for methanol flow control*
- *LAN communication*

DMFC Single cell test system

The Smart2™ DM, DMFC test system is very compact, however, fully automated and integrated at a very attractive price. This system was designed to test 100Watt DMFC in one system. Smart2™ DM includes PC controlled electronic load, gas/liquid controller and methanol pump. Our control and measurement software with powerful graphical user interface makes you easy to operate the Smart2™ DM test system. With the exceptional features of the Smart2™ DM, you can digitize your fuel cell economically and evaluate it easily.

100Watt Smart2™ DM supports the following safety feature

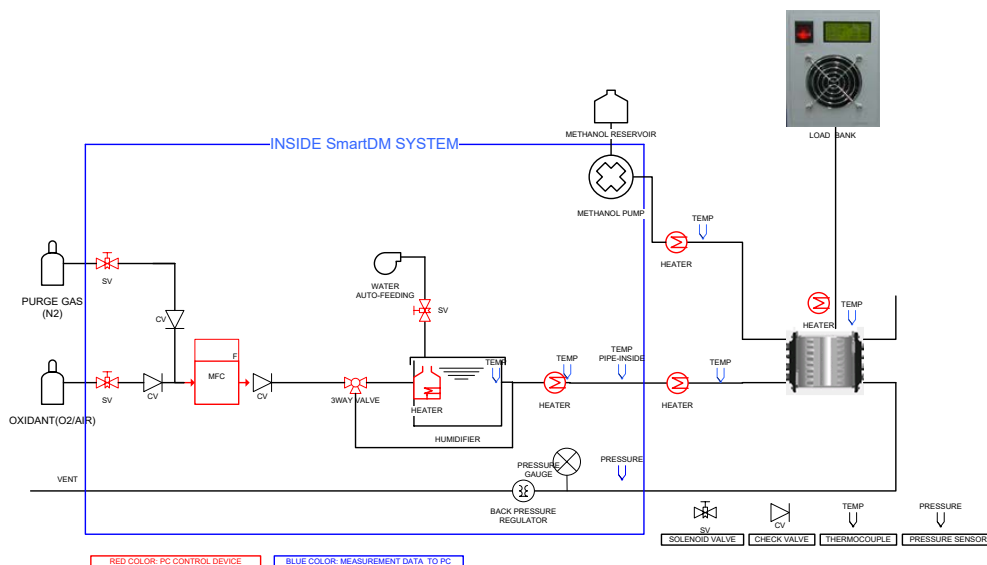
1. Watch dog function: If there is no communication between control PC and system, System will be stopped automatically
2. Emergency button : Hardware and software emergency button provided
3. User can set safety limit value for each device
4. Low voltage limit and high voltage limit setting : If the fuel cell(stack) is over high voltage limit or less than low voltage limit, electronic load will not discharge the cell

The WFTS software for Smart2 series is a convenient and powerful tool allowing:

- Simple and easy operation
- Real-Time graphic data output
- User friendly graphical user Interface & continuous data logging
- Background server program
- Independent data managing software
- Button click & play mode
- VOI (Value of Interest) displaying selection
- Colorful display of each module status

Smart2 DM Fuel Cell Test System

● Block Diagrams



● Standard Configuration

- Solenoid valve : 4ea
 - 2-way : Oxidant gas, purge gas, water supply for cathode humidifier
 - 3-way : Wet-Dry selection for cathode
- Piston pump for Anode : 1set
- MFC for Cathode : 1set
- Check valve : 2ea
- Temperature controller(with heater & thermocouples) : 4set
 - Cathode gas line temperature controller for outside the instrument : 1set
 - Cathode gas line temperature controller for inside the instrument : 1set
 - Humidifier&temperature controller for inside the instrument : 1set
 - Cell temperature controller : 1set
- Manual back pressure regulator : 1ea
- Electronic load : 1set
- System controller including DAQ system with emergency button
- Control PC(option) with Smart software
- Interface boards with LAN cables

● Optional Equipment

- Impedance monitor
- External potentiostat/galvanostat
- Zero voltage booster
- Fuel cell hardware fixture
- Conductivity cell
- Conductivity jig

● Specification

MFC (Mass Flow Controller), 1 ea

- Max. Flow rate : Air 5slpm
- Accuracy : 1% Full scale

Cathode gas flow rate 0.1 – 5 slpm

Humidifier, 1ea

- Membrane type (Nafion membrane tube length: 1 meter)
- Automatic water feed system (PC control)

Built-in Precision Electronic Load

- 4 ranges(voltage & current)
- Max 100Watt (Max. 100A, Max 10V)
- Standard : 10V(1,2,5,10V) 50A(5,20,50,100A)
- Control : CC,CV,C,STEPV,STEPP

Humidified or dry gas selectable signal for external humidifier's 3way valve

Temperature Control System

- Control & measurement 3 points
- Gas line (external), Cell temperature measurement

Compact size 430W x 504H x 430D (mm)

All specifications are subject to change without notice.



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