

FuelCell Addendum – Temperature Ramp Support

D. Johnson, Scribner Associates Inc.

January 27, 2009

Introduction

FuelCell versions 3.90 and later have an option function that will allow temperature controllers to ramp at a specified rate to a setpoint. It is compatible with FuelCell firmware:

850C/890C/890CL – Version 3.23 or later

850e/855/890e/890ZV – Version 4.04 or later

Procedure

1) To activate the cell temperature ramping:

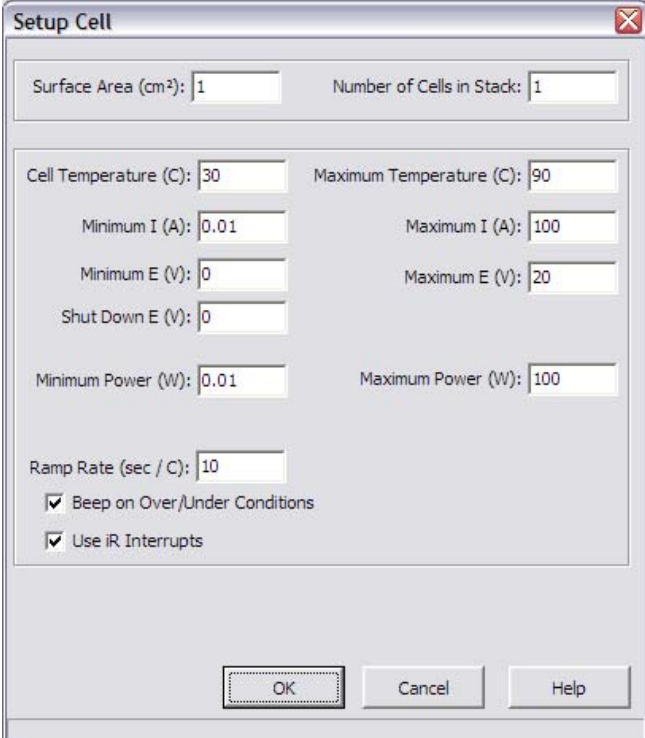
Start the FuelCell program and click File | Instrument Configuration... and enter the unit serial number.

On the System tab, check “Ramp Cell Temperature”.

Save the configuration settings and restart FuelCell.

2) The Setup Cell screen will now display a setting for the Ramp Rate in seconds per degree C. If the Ramp Rate is set to zero, a ramp will not be used and the setpoint will be programmed directly.

3) The Temperature Ramp function only affects the Cell Temperature setting. The Anode, Cathode and Aux Temperature controllers are not modified.



The image shows a screenshot of the 'Setup Cell' dialog box. The dialog has a title bar with a close button (X). It contains several input fields and checkboxes. The fields are arranged in a grid-like fashion. At the bottom, there are three buttons: 'OK', 'Cancel', and 'Help'.

Parameter	Value
Surface Area (cm ²):	1
Number of Cells in Stack:	1
Cell Temperature (C):	30
Maximum Temperature (C):	90
Minimum I (A):	0.01
Maximum I (A):	100
Minimum E (V):	0
Maximum E (V):	20
Shut Down E (V):	0
Minimum Power (W):	0.01
Maximum Power (W):	100
Ramp Rate (sec / C):	10
Beep on Over/Under Conditions	<input checked="" type="checkbox"/>
Use iR Interrupts	<input checked="" type="checkbox"/>

4) If ramp control of the other controllers is desired, use the following procedure.

Open the “fuelcell.ini” file using Notepad (if the computer controls dual stations, the ini files for each station must be modified).

In the [System] section, add the EnableAnodeTempRamp, EnableCathodeTempRamp and EnableAuxTempRamp settings as shown below. Note that the other settings in the System section may not be the same as those shown below. Use “1” to turn on the Ramp mode. Use “0” to use the standard behavior.

```
[System]
EnableAnodeGas=2
EnableAnodePurge=1
EnableAnodeTemp=1
EnableCathodeGas=1
EnableCathodePurge=1
EnableCathodeTemp=1
EnableCellTemp=1
EnableAuxTemp=0
EnableCellTempRamp=1
EnableAnodeTempRamp=1
EnableCathodeTempRamp=1
```

Save the file and close Notepad.

Note: All temperature controllers will use the same ramp rate as set in the Setup Cell screen.