



WW Celerity Applications Engineering
Mass Flow Controller Troubleshooting Guide

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Troubleshooting Guide for Digital RS - 485, DeviceNet and IFC-125 Mass Flow Controllers

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22. Ratio Setpoint doesn't match the Ratio Output or Unstable Flow
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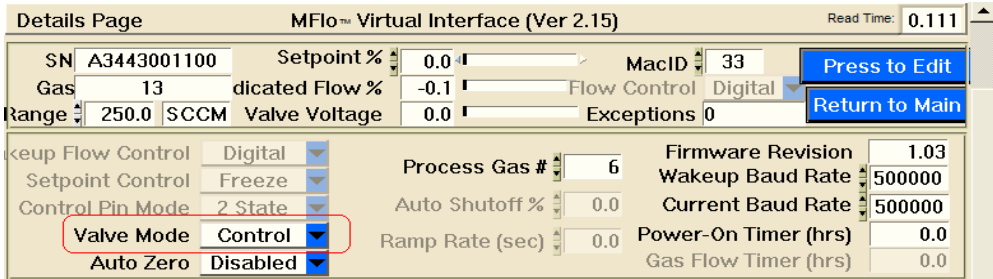
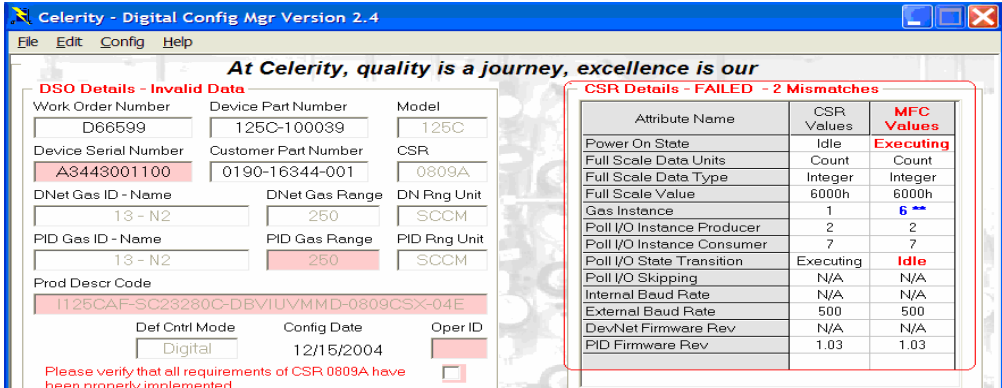
Correcting or Changing CSR Parameters for all DeviceNET MFC's including the IFC-125

24. Correcting or Changing a CSR

References:

- FSB-001-0015 MFC Zero Procedure
- FSB-001-0019 PTI Zero Procedure
- FSB-001-0013 Clearing Exceptions
- 990-100-0069 MFC Specified Gas Pressures

Troubleshooting Guide for Digital RS - 485, DeviceNet and IFC-125 Mass Flow Controllers

Symptom or problem	Possible causes	Corrective Action
1. No gas Flow	- Is the gas supply turned on? - Is the regulator on and at the correct operating pressure? - Are any upstream or downstream shutoff valves closed, either by the system or because of failure? - Is a minimum of 11-24 VDC power present at the MFC DNET connector? - Is the commanded set point from the tool/system "0" (Digital) setpoint? - Has the MFC been commanded off by an active "valve close" input?	Common Tools Sets APPLIED – <i>DNET PROTOCOL</i> - Disconnect the MFC power and install your DNET Diagnostic Cable from your PC. LAM – <i>RS-485 PROTOCOL</i> - Ask LAM FSE to halt communications temporarily to connect to the RJ-485 or install break out board. (P/N 200-193-1000) (Note – LAM TOOLS, Both Flow Control and Wakeup Control must be set to Digital.) Note: This procedure will only work for 300MM tools and baud rate has to be set to 38.4K for communication to the MFC. NOVELUS – <i>DIGITAL MFC's / ANALOG MODE</i> - Connect to RS-485 directly. TEL - <i>DIGITAL MFC's / ANALOG MODE</i> - Connect to RS-485 directly. AMAT TOOLS Verify DMFC VALVE MODE using Virtual Interface Software V2.15, Go to View Details Page, Valve Mode should be set to Control  The screenshot shows the MFlow Virtual Interface software. The 'Valve Mode' dropdown menu is highlighted with a red box and set to 'Control'. Other settings visible include Setpoint % at 0.0, Gas at 13, Range at 250.0, SCCM, Valve Voltage at 0.0, and Exceptions at 0. Verify DMFC Attributes Using DConfigmgr – Incorrect CSR setting will cause the MFC to not operate on the tool.  The screenshot shows the Celerity Digital Config Mgr software. The 'CSR Details - FAILED - 2 Mismatches' window is open, showing a table of CSR values and MFC values. The 'Power On State' is 'Idle' (CSR) vs 'Executing' (MFC), and the 'Poll I/O State Transition' is 'Executing' (CSR) vs 'Idle' (MFC). Both are marked as mismatches. LAM TOOLS Verify DMFC VALVE MODE using Virtual Interface Software V2.15, Go to View Details Page, Valve Mode should be set to Control

No gas Flow (Cont.)

2. Flow out of range

- Is the gas inlet/outlet pressure differential either too high or too low? Reference the MFC spec sheet.
 - If the differential is too high, MFC valve voltage or will be zero or abnormally low for set point.
 - If the differential is too low, the MFC valve voltage or drive will be at its maximum value or abnormally high for set point.
- Is a minimum of 11-24 VDC power present at the MFC DNET connector?
- Is the set point correct for the required gas flow?
- Is the MFC calibrated for the particular gas?

Details Page MFlo™ Virtual Interface (Ver 2.15) Read Time: 0.344

SN: A3183019900 Setpoint %: 0.0 MacID: 32 Press to Edit

Gas: BCl3* dicated Flow %: -0.2 Flow Control: Digital Return to Main

Range: 300.0 sCCm Valve Voltage: 0.0 Exceptions: 0

Setup Flow Control: Digital Process Gas #: 1 Firmware Revision: 1.02

Setpoint Control: Follow Wakeup Baud Rate: 38400

- Alternate Software CAL204. Go to Final Configuration, **Check Default Control Mode**, it should be **Digital**.
- Alternate Tool Communication Cable Test – Remove MFC Power/Communication cable and place it on another know good MFC with in the gas box to validate specific line.

Common Tools Sets

APPLIED – DNET PROTOCOL - Connect to the DNET chamber bus using DConfigMgr Diagnostic Software.

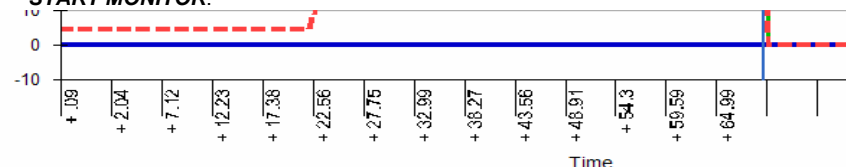
LAM – RS-485 PROTOCOL - Ask LAM FSE to halt communications temporarily to connect to the RJ-485 or install break out RS-485 adaptor board. **Note: This procedure will only work for 300MM tools and baud rate has to be set to 38.4K for communication to the MFC.**

NOVELUS – DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly.

TEL - DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly.

AMAT TOOLS

- Verify SETPOINT, READBACK and VALVE VOLTAGE** – Connect your PC to DNET hub using DConfigMgr. Connect to the MFC by selecting the correct MAC ID. Select the **Config** tab and select **Chart Flow** and use **START MONITOR**.



-- Setpoint — Flow — Valve Voltage

Start Chart

Clear Chart

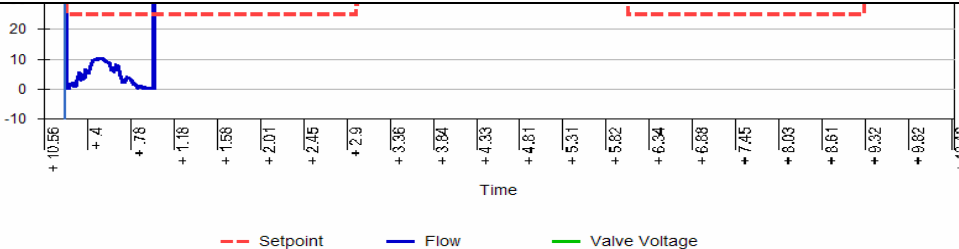
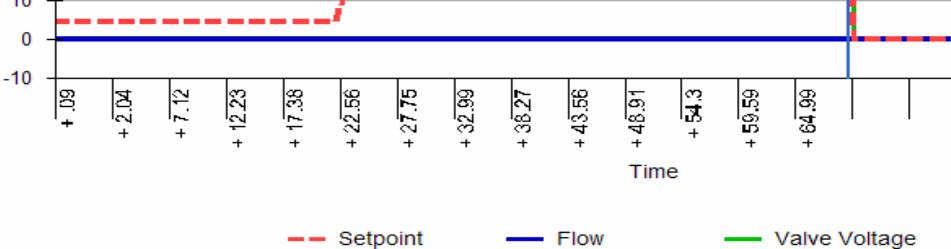
Start Monitor

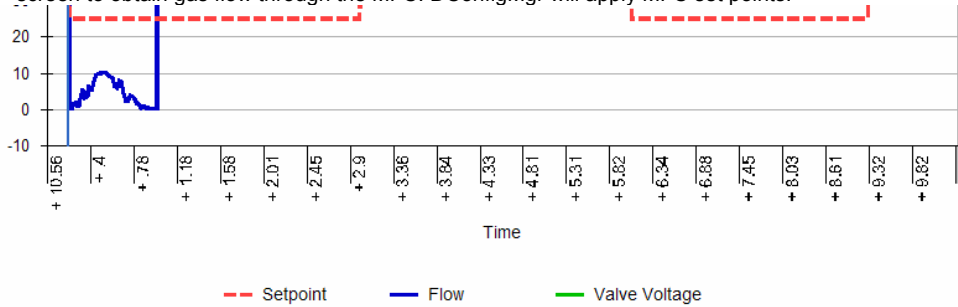
Save Chart

- Confirm **MFC Flow** matches **SETPOINT**
- Confirm **VALVE VOTLAGE** - A very low Valve Voltage could indicate a high inlet pressure. A very high Valve Voltage could indicate a low inlet pressure. If the delta between the inlet and outlet are close in pressure you may not achieve the full scale flow rate. (Refer to the MFC Specs) Go to the tools Maintenance Screen and have the operator or OEM read the inlet and outlet pressure transducers.
- ADJUST INLTET / OUTLET PRESSURE** to achieve the proper flow reading.

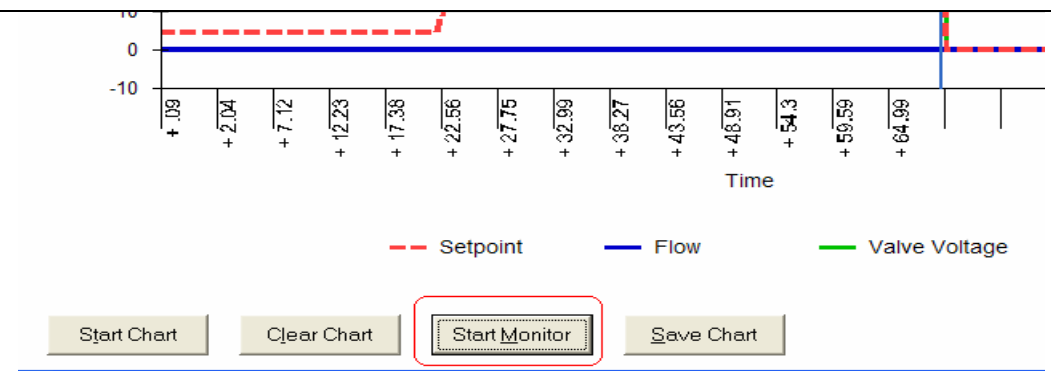
LAM TOOLS

- Have LAM FSE or operator stop RS-485 communications temporarily to connect to the RJ-485 jack or to install break out RS-485 adaptor board.
- Verify SETPOINT, MFC FLOW and VALVE VOLTAGE** – Connect your PC to MFC. (Select COM 1) Use DConfigMgr to connect to the MFC. Select the **Config** tab and select **Chart Flow** and use **START CHART**.
- IMPORTANT** – Ask the LAM FSE to manual open the inlet and outlet pneumatic from the tools maintenance screen to obtain gas flow through the MFC. DConfigMgr will apply MFC set points.

Flow out of range (Cont.)		 Start Chart Clear Chart Start Monitor Save Chart - Confirm MFC Flow matches SETPOINT - Confirm VALVE VOTLAGE - A very low Valve Voltage could indicate a high inlet pressure. A very high Valve Voltage could indicate a low inlet pressure. If the delta between the inlet and outlet are close in pressure you may not achieve the full scale flow rate. (Refer to the MFC Specs) Go to the tools Maintenance Screen and have the operator read the inlet and outlet pressure transducers on the tool. ADJUST INLTET / OUTLET PRESSURE to achieve the proper flow reading.
3. Flow unable to reach setpoint	- Is the gas inlet/outlet pressure differential sufficient? (Refer to the MFC's specification sheet) - If the upstream and downstream pressures are equal, then there will be no flow. You should have at least 2psi difference. - Is the MFC calibrated for the gas flowing?	Common Tools Sets APPLIED – DNET PROTOCOL - Connect to the DNET chamber bus using DConfigMgr Diagnostic Software. LAM – RS-485 PROTOCOL - Ask LAM FSE to halt communications temporarily to connect to the RJ-485 or install break out RS-485 adaptor board. Note: This procedure will only work for 300MM tools and baud rate has to be set to 38.4K for communication to the MFC. NOVELUS – DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly. TEL - DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly. AMAT TOOLS Verify MFC's SETPOINT, MFC Flow and VALVE VOLTAGE – Connect your PC to DNET hub using DConfigMgr. Connect to the MFC by selecting the correct MAC ID. Select the Config tab and select Chart Flow and use START MONITOR.  Start Chart Clear Chart Start Monitor Save Chart - Confirm that MFC Flow matches SETPOINT - Confirm VALVE VOTLAGE - A very low Valve Voltage could indicate a high inlet pressure. A very high Valve Voltage could indicate a low inlet pressure. If the delta between the inlet and outlet are close in pressure you may not achieve the full scale flow rate. (Refer to the MFC Specs) Go to the tools Maintenance Screen and have the operator read the inlet and outlet tool pressure transducers. ADJUST INLTET / OUTLET PRESSURE to achieve the proper flow reading.

Flow unable to reach setpoint. (Cont.)		LAM TOOLS - Have LAM FSE or operator to stop RS-485 communications temporarily to connect to the RJ-485 jack or to install break out RS-485 adaptor board. (P/N 200-193-1000) Verify MFC SETPOINT, MFC Flow, and VALVE VOLTAGE – Connect your PC to MFC. (Select COM 1) Use DConfigMgr to connect to the MFC. Select the Config tab and select Chart Flow and use START CHART. IMPORTANT – Ask the LAM FSE to manual open the inlet and outlet pneumatic from the tools maintenance screen to obtain gas flow through the MFC. DConfigMgr will apply MFC set points.  Time -- Setpoint — Flow — Valve Voltage Start Chart Clear Chart Start Monitor Save Chart - Confirm that MFC Flow matches SETPOINT - Confirm VALVE VOLTAGE - A very low Valve Voltage could indicate a high inlet pressure. A very high Valve Voltage could indicate a low inlet pressure. If the delta between the inlet and outlet are close in pressure you may not achieve the full scale flow rate. (Refer to the MFC Specs) Go to the tools Maintenance Screen and have the operator read the inlet and outlet pressure transducers on the tool. ADJUST Tool INLET and OUTLET PRESSURE to achieve the proper flow reading.
4. No gas flow control at low setpoint on MFC	- Is the gas inlet/outlet differential pressure too high or above published setpoints listed on MFC Spec sheet? - Is MFC calibrated for the gas flowing?	Common tool sets APPLIED – DNET PROTOCOL - Connect to the DNET chamber bus using DConfigMgr Diagnostic Software. LAM – RS-485 PROTOCOL - Ask LAM FSE to halt communications temporarily to connect to the RJ-485 or install break out RS-485 adaptor board. Note: This procedure will only work for 300MM tools and baud rate has to be set to 38.4K for communication to the MFC. NOVELUS – DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly. TEL - DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly. - Adjust the regulator to the proper operating pressure. (Reference 990-100-0069) - Check that the tool is set to read the correct gas page. - Confirm that the OEM tool is looking at the proper active process page. If above causes have been ruled out, the MFC valve may be leaking, possibly from contamination. If contamination is suspected, conduct a thorough purge of the tool and MFC, if not corrected replace MFC. AMAT TOOLS Verify MFC Flow – Connect your PC to DNET hub using DConfigMgr. Connect to the MFC by selecting the correct MAC ID. Select the Config tab and select Chart Flow and use START MONITOR.

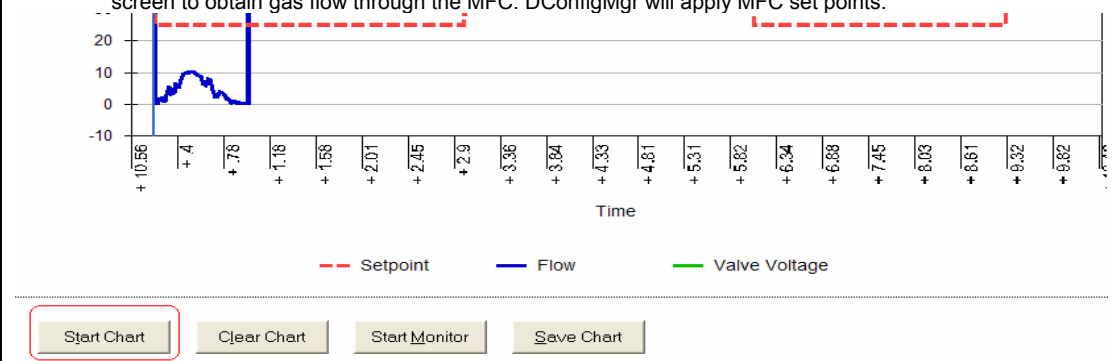
No gas flow control at low setpoint on MFC (Cont.)



- Confirm the **MFC Flow** matches tools zero offset.
- Check INLET pressure for a specified operating pressure. A high inlet pressure will force gas to leak cross-seat of the valve. (990-100-0069)

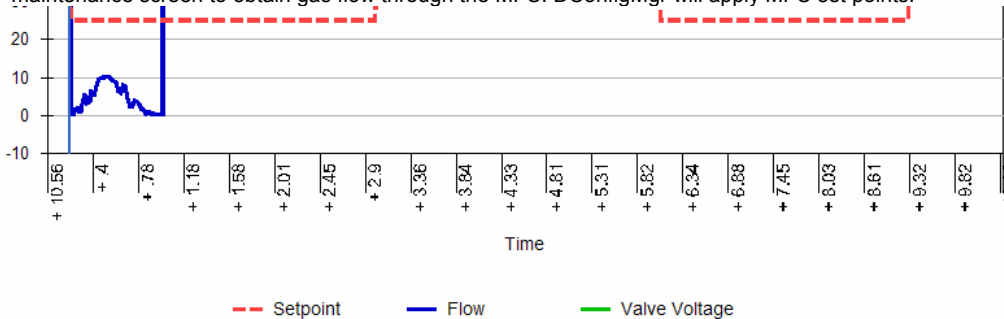
LAM TOOLS

- Have LAM FSE or operator to stop RS-485 communications temporarily to connect to the RJ-485 jack or to install break out RS-485 adaptor board.
- **Verify MFC FLOW** – Connect your PC to MFC. (Select COM 1) Use DConfigMgr to connect to the MFC. Select the **Config** tab and select **Chart Flow** and use **START CHART**.
- **IMPORTANT** – Ask the LAM FSE to manual open the inlet and outlet pneumatic from the tools maintenance screen to obtain gas flow through the MFC. DConfigMgr will apply MFC set points.



- Validate **MFC Flow** matches tools zero offset.
- Check INLET pressure for specified operating pressure. A high inlet pressure above 50 psig will force gas to leak cross-seat of the valve. ZERO MFC – Per Procedure FSB-001-0019, FSB-001-0015 Refer to Typical gas pressure chart 900-100-0069
- If above causes have been ruled out, the MFC valve may be leaking, possibly from contamination. If contamination is suspected, conduct a thorough purge of the system. Replace MFC if required.

5. OEM tool does not read correct MFC zero reading.	- Is the differential pressure across the MFC really zero? - Is a minimum of 11-24 VDC power present at the MFC DNET connector? - Is the MFC mounted in the proper attitude? - Is the flow output signal of the MFC really zero? - MFC valve leakage. - Incorrect MFC Zero	Reference: FSB-001-0015 , FSB-001-0019 MFC Zeroing procedures Some tools can not read values under 0.00 and customer wants to see the reading just above 0.00. You can put a zero value offset using terminal mode. - Enter Terminal mode in Cal204 program then select "Terminal" from the MFC pull down menu. - Type pmzeroadjust? In the command line and press Send Command. It should return a 0 - Type pmzeroadjust=0.01 and press the Send Command and it should now read back 0.01 This will allow tools that can not read negative values to always read in the positive direction.
6. Gas flow or MFC reading oscillates	- Is the MFC calibrated for the gas flowing? - Is there too much gas pressure across the MFC? Is it higher than published specification? - Are the inlet and outlet pressures stable? No oscillation or hunting.	Common Tools Sets APPLIED – DNET PROTOCOL - Connect to the DNET chamber bus using DConfigMgr Diagnostic Software. LAM – RS-485 PROTOCOL - Ask LAM FSE to halt communications temporarily to connect to the RJ-485 or install break out RS-485 adaptor board. Note: This procedure will only work for 300MM tools and baud rate has to be set to 38.4K for communication to the MFC. NOVELUS – DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly. TEL - DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly. AMAT TOOLS Verify OSCILLATION – Connect your PC to DNET hub using DConfigMgr. Connect to the MFC by selecting the correct MAC ID. Select the Config tab and select Chart Flow and use START MONITOR. - Confirm that SETPOINT and VALVE VOLTAGE is Oscillating (Hunting). ADJUST INLTET PRESSURE up or down by 2 psig increments until hunting disappears. Verify common gas pressure range per chart. (990-100-0069) - NOTE- Hunting or Oscillation can be contributed to multiple MFC's sharing a common gas manifold. Inspect gas delivery sources to gas box. (Example – two tools that share a common gas bottle calling for gas at the same time)

Gas flow or MFC reading oscillates (Cont.)		LAM TOOLS - Have LAM FSE or operator to stop RS-485 communications temporarily to connect to the RJ-485 jack or to install break out RS-485 adaptor board. (P/N 200-193-1000) Verify SETPOINT, MFC Flow, and VALVE VOLTAGE – Connect your PC to MFC. (Select COM 1) Use DConfigMgr to connect to the MFC. Select the Config tab and select Chart Flow and use START CHART. IMPORTANT – Ask the LAM FSE to manual open the inlet and outlet pneumatic valves from the tools maintenance screen to obtain gas flow through the MFC. DConfigMgr will apply MFC set points.  Time -- Setpoint — Flow — Valve Voltage Start Chart Clear Chart Start Monitor Save Chart - Confirm that SETPOINT and VALVE VOLTAGE is Oscillating (Hunting). ADJUST INLTET PRESSURE up or down by 2 psig increments until hunting disappears. Verify common gas pressure range per chart. - NOTE- Hunting or Oscillation can be contributed to multiple MFC's sharing a common gas manifold. Inspect gas delivery sources to gas box. (Example – two tools that share a common gas bottle calling for gas at the same time) - Replace or configure MFC with the properly calibrated gas and range. (990-100-0069) - Most nitrogen calibrated MFC's will oscillate on helium or hydrogen. - Adjust the regulator to proper operating pressures if necessary. - Check inlet pressure on tool. A faulty pressure regulator can make an MFC appear to oscillate. Reference: FSB-001-0014 - Check outlet pressure If not stable, check for a faulty vacuum pump or fluttering or hunting downstream valve.
7. Zero Drift	- Improper Zero of the MFC - MFC ageing or sensor stabilization. - Excessive Valve leakage	Common Tools Sets APPLIED – DNET PROTOCOL - Disconnect the MFC power and install your DNET Diagnostic Cable from your PC. LAM – RS-485 PROTOCOL - Ask LAM FSE to halt communications temporarily to connect to the RJ-485 or install break out board. (P/N 200-193-1000) (Note – LAM TOOLS, Both Flow Control and Wakeup Control must be set to Digital.) Note: This procedure will only work for 300MM tools and baud rate has to be set to 38.4K for communication to the MFC. NOVELUS – DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly. TEL - DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly. The following applies to all tools with DIGITAL MFC's Verify CONTROL STATE and REASON FOR STATE using CheckMFC Software if AUTOZERO IS ENABLED.

Zero Drift (Cont.)

Review operational variables:

Press. and Temp. signals

Flow Meter signals

Flow Controller signals

Reporting:

QC Report

<< Back Quit

MFC Configuration/Status Review

File MFC View Help

Select MFC: # 1: MacID 33

Flow Controller and Valve Driver signal flow:

Unit serial number: A3443001100	Valve type: Normally Close	Valve drive: 0.
Sensor serial #: P555	Control State: Off	Pressure (PSIA): 15.71
fcRawSetpoint: 0.0003	Reason for state: Auto shut-off	Normalized pressure value: 0.15707

- Reason for state – If drifting has occurred between 5 -10 % an Auto Zero ALARM notice will be present.
- Clear the Auto Zero Exception using the procedure in FSB-001-0013
- Perform Zero procedure FSB-001-0015, FSB-001-0019

FSB-001-0013 Clearing Exceptions
CheckMFC software to look at flows
Perform MFC Zero after brake-in period.

8. Calibration Drift Correction on Tools

- Gas box temperature too high.
- Zero Calibration incorrect.
- Incorrect gas page called out.

Common Tools Sets

APPLIED – DNET PROTOCOL - Connect to the DNET chamber bus using DConfigMgr Diagnostic Software.
LAM – RS-485 PROTOCOL - Ask LAM FSE to halt communications temporarily to connect to the RJ-485 or install break out RS-485 adaptor board. **Note: This procedure will only work for 300MM tools and baud rate has to be set to 38.4K for communication to the MFC.**
NOVELUS – DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly.
TEL - DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly.

AMAT TOOLS

Use Cal204 to correct for linear calibration shifts reported by the on tool flow verification system.

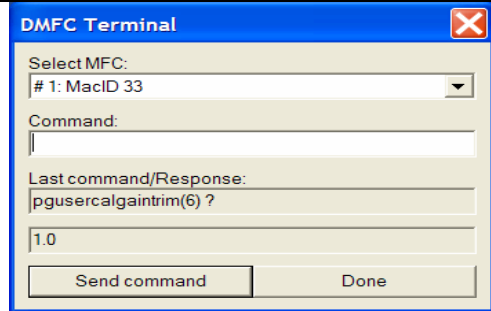
- Verify MFC Zero is correct per FSB-001-0015, FSB-001-0019
- Have operator run multiple flow cals to see that the flow error is consistent.

EXAMPLES - The AMAT tool will display a cal factors based on an on board flow verification test.

- A factor of 1.00 means that the MFC is right on calibration.
- A factor of 1.10 means that the MFC is 10% high.
- A factor of 1.05 means that the MFC is 5% high etc.
- A factor of 0.90 means that the MFC is 10% low.
- A factor of 0.95 means that the MFC is 5% low etc.

From TERMINAL MODE of Cal 204
 ENTER pgusercalgaintrim(pg?)? NOTE: You must enter the active page needing adjustment. Page 6 is shown below.

Calibration Drift
Correction on Tools
(Cont.)



EXAMPLE

If the MFC cal factor is off by 5% or 1.05 high

ENTER pgusercalgaintrim(6) =1.05

- Ask the tool operator or tool FSE to re-run the flow calibrations several times. The calibration will be corrected and the tool will be displaying a factor of 1.00 indicating correct zero calibration.

LAM TOOLS

Use Cal204 to correct for linear calibration shifts reported by the on tool flow verification system.

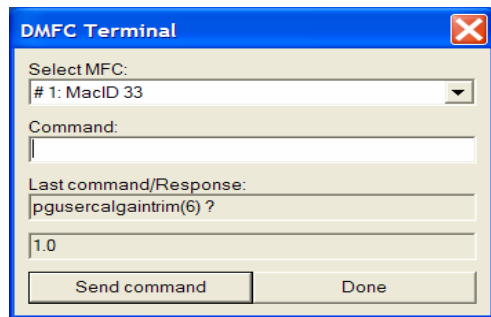
- Verify MFC Zero is correct per FSB-001-0015, FSB-001-0019
- Have operator run multiple flow calcs to see that the flow error is consistent.

EXAMPLES - The LAM tool will display a cal % of f flow error.

- A % of 0.0% means that the MFC is right on calibration.
- A % of 10% means that the MFC is 10% high.
- A % of 5% means that the MFC is 5% high etc.
- A % of -10% means that the MFC is 10% low.
- A % of -5% means that the MFC is 5% low etc.

From TERMINAL MODE of Cal 204

ENTER pgusercalgaintrim(pg?)? NOTE: You must enter the active page of the gas that needs adjustment. Page 6 is used in the example below. After entering pgusercalgaintrim(6) press the send command button.



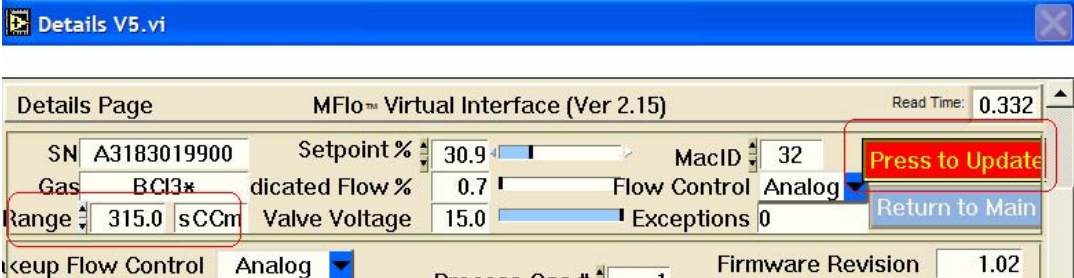
EXAMPLE

If the MFC cal factor is off by 5% or 1.05 high. Calculate the % error in SCCM or SLM.

100 SCCM MFC is out by 5% high = 105 SCCM

105 SCCM – 100 SCCM = 5 SCCM

5 SCCM / 100 SCCM = 0.05

		You ENTER <code>pgusercalgaintrim(6) =1.05</code> then PRESS the SEND COMMAND BUTTON. Ask the tool operator or tool FSE to re-run the flow calibrations several times. The calibration will be corrected and the tool will be displaying a factor of 0.0%.
9. Calibration Drift Note: Correction on Tools using Digital MFC's in ANALOG mode. Calibration Drift (Cont.) Note: Correction on Tools using Digital MFC's in ANALOG mode.	- Gas box temperature too high. - Zero Calibration incorrect. - Incorrect gas page called out.	<i>APPLIES TO ALL OEM TOOLS USING DIGITAL RS-485 MFC's in ANALOG MODE.</i> Use Multiflo Virtual Interface Software to correct for linear calibration shifts reported by the on tool flow verification system. - Verify MFC Zero is correct per FSB-001-0015, FSB-001-0019 - Have operator run multiple flow calcs to see that the flow error is consistent. - Determine calibration offset in SCCM or SLM. Example – 300 sccm / BCL3 is out of cal by 5% low. Re-ranging the MFC to 315 sccm will correct the flow error indicated by the tool. 2nd Example – The tool reads a factor of 1.05, this means the cal is off by 5% and can be corrected by a simple MFC re-range of 315 sccm.  - Press the EDIT button, it will begin blinking Press to Update. - Use Up and Down arrow key to re-range MFC to correct for calibration offset per calculated correction. (In this example 5%) - Press to UPDATE button, so that the MFC saves the new value. - Ask operator or FSE to re-run flow calibration. The tools calibration error will now be corrected and the tools display will indicate correct flow value.

10. Overshoot Adjustment

- If the tool is idle for an extended period of time, high inlet pressure or contamination will appear as overshoot on the first wafer.
- If the inlet pressure is normal and the MFC overshoots every time the tool commands a setpoint adjust the Pedestal value.

Overshoot Adjustment (Cont.)

APPLIES TO ALL OEM TOOLS WITH DIGITAL AND DEVICENET MFC'S

Common Tools Sets

APPLIED – DNET PROTOCOL - Disconnect the MFC power and install your DNET Diagnostic Cable from your PC.
LAM – RS-485 PROTOCOL - Ask LAM FSE to halt communications temporarily to connect to the RJ-485 or install break out board. (P/N 200-193-1000) (**Note** – LAM TOOLS, Both Flow Control and Wakeup Control must be set to Digital.) **Note: This procedure will only work for 300MM tools and baud rate has to be set to 38.4K for communication to the MFC.**

NOVELUS – DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly.

TEL - DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly.

Disconnect the power to the MFC for the following procedure.

- Go to VALVETUNE program and bring MFC online. MFC with 204/207/212/215 PCB boards.
- At the Hardware Configuration SCREEN PRESS the TUNE button.

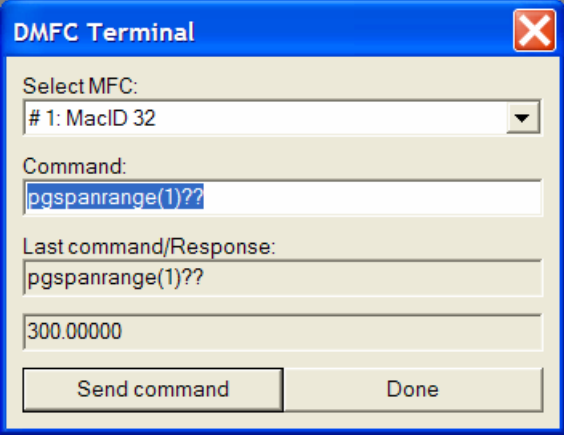
*******WARNING--DO NOT PRESS Pre-tune BOTTON, ALL MEMORY WILL BE LOST*******

- Depress NEXT

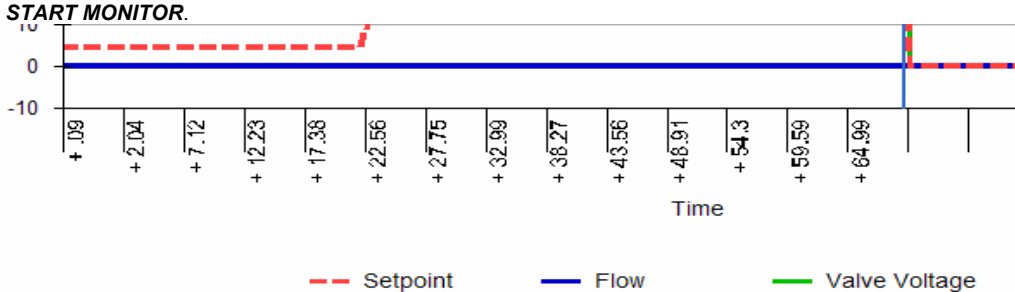
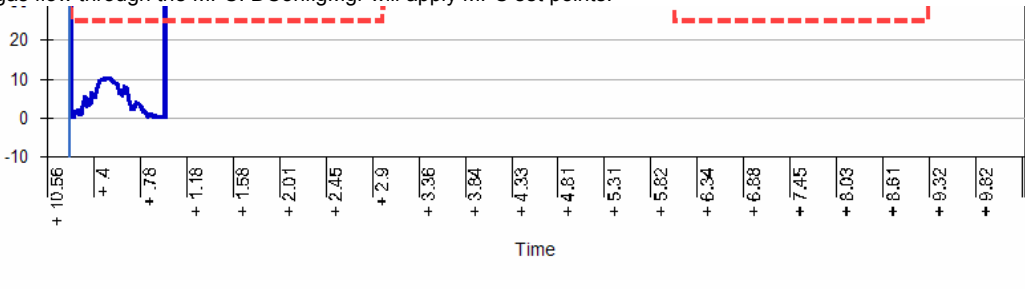
NOTE: INCREASING the Valve pedestal value will decrease Overshoot. DECREASING the Valve pedestal value will increase Overshoot.

Example – The current Value is 0.3, increase the value to 0.4 press the ACCEPT button and Quit ValveTune then re-apply tool power cable.

- Ask operator or FSE to re-run test and verify that the overshoot has been eliminated. You may need to adjust Valve Pedestal up or down more than once.

11. Tool indicates the wrong full scale value	Older version of Multiflo Configurator used to program MFC.	APPLIES TO ALL OEM TOOLS USING DIGITAL MFC'S WITH DEVICENET - Update to latest MF Configurator Example – The tool has a 30 SLM MFC installed and the tool is reading the MFC as 30 million or 30,000,000 SCCM instead of 30,000 SCCM. - Use Cal204 in terminal mode. Select the active page that requires this adjustment. - ENTER - Pgspanrange(1)?? This command will read the full scale value of gas page  - ENTER Full Scale Value Pgspanrange(1)==30000.001 and press SEND COMMAND. This command will change the full scale value from 29,999.998 to 30,000.002 for active gas page. - PRESS DONE and EXIT Cal 204. - Reconnect tool power cable and read corrected tool display.
12. Incorrect Inlet gas pressure	- Valve leakage - Oscillation or hunting - Incorrect pressure range for process gas - Unregulated gas pressure from Facilities.	Reference: 990-100-0069
13. MFC dumps large volume of gas into chamber when setpoint is commanded from tool	- The tool is commanding a setpoint before the pneumatic valves are opened. - Tool MFC and pneumatic valve timing may be offset.	SETTING THE MFC VALVE TURN ON DELAY The tools chamber pressure will indicate that a large volume of gas has entered the chamber and usually triggers a tool alarm. If the MFC valve opens before the pneumatic valves in the gas box this problem will occur. The valve tour on delay would need to be adjusted. Go to Cal204, Final Configuration Examples of Turn On Delay Values – The below screen shot value is 0.2 seconds 100 = 0.1 Seconds 200 = 0.2 Seconds 1000 = 1.0 Seconds

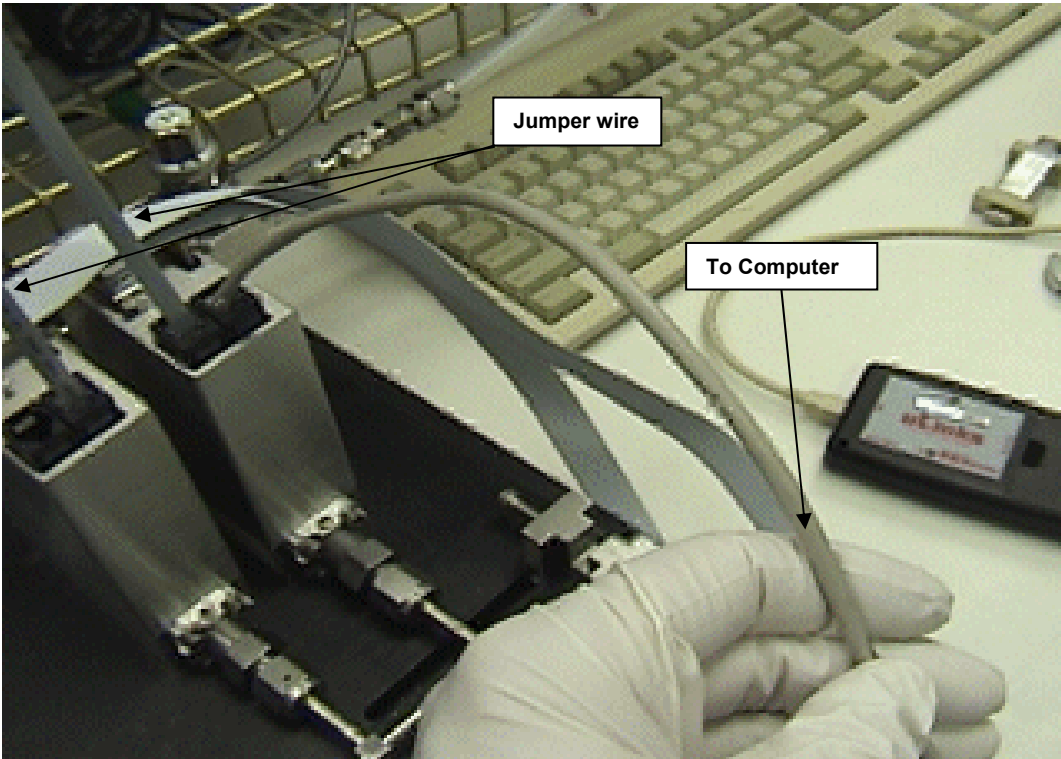
		2. INCREASE the Turn-on-delay value by values of 100. 3. If the current setting is 200, change the value to 300, DEPRESS the RECORD button and Exit Cal204. 4. Re-apply the tools power cable and ask the operator or FSE re-run the test. This procedure may need to be repeated until the tools chamber pressure controlled. Repeat as needed.
14. DeviceNet Communication issue	• Power supply for DeviceNet bad • Improper termination on network • Wrong speed setting on scanner • Bad cabling to MFC • Wrong MAC ID. (Two MFC's have same MAC ID)	Reference: FSB-001-0009
15. Tool displayed output doesn't match MFC flow output	• Cable resistance causing offset in the tool's display • AMAT tools use a delta adjustment to cancel out any cable resistance and voltage drop. Check that this offset number is at zero. • Check MFC Zero (FSB-001-0015, FSB-001-0019)	Common Tools Sets APPLIED – DNET PROTOCOL - Connect to the DNET chamber bus using DConfigMgr Diagnostic Software. LAM – RS-485 PROTOCOL - Ask LAM FSE to halt communications temporarily to connect to the RJ-485 or install break out RS-485 adaptor board. Note: This procedure will only work for 300MM tools and baud rate has to be set to 38.4K for communication to the MFC. NOVELUS – DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly. TEL - DIGITAL MFC's / ANALOG MODE - Connect to RS-485 directly. AMAT TOOLS FIRST VERIFY ZERO PER PROCEDURE FSB-001-0015, FSB-001-0019 • Verify SETPOINT, MFC Flow and VALVE VOLTAGE – Connect your PC to DNET hub using DConfigMgr. Connect to the MFC by selecting the correct MAC ID. Select the Config tab and select Chart Flow and use

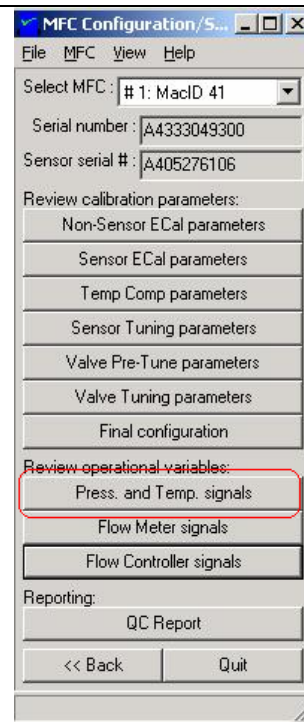
Tool displayed output doesn't match MFC flow output. (Cont)		START MONITOR.  Time -- Setpoint — Flow — Valve Voltage Start Chart Clear Chart Start Monitor Save Chart • Validate READBACK matches SETPOINT match LAM TOOLS • Have LAM FSE or operator to stop RS-485 communications temporarily to connect to the RJ-485 jack or to install break out RS-485 adaptor board. • Verify SETPOINT, MFC FLOW and VALVE VOLTAGE – Connect your PC to MFC. (Select COM 1) Use DConfigMgr to connect to the MFC. Select the Config tab and select Chart Flow and use START CHART. IMPORTANT – Ask the LAM FSE to manual open the inlet and outlet pneumatic from the tools maintenance screen to obtain gas flow through the MFC. DConfigMgr will apply MFC set points.  Time -- Setpoint — Flow — Valve Voltage Start Chart Clear Chart Start Monitor Save Chart • Confirm that MFC Flow matches SETPOINT match
16. Auto Zero does not work properly.	• Autozero is not turned on • MFC was not properly zeroed	FSB-001-0015, FSB-001-0019

Troubleshooting guide for Analog MFC's

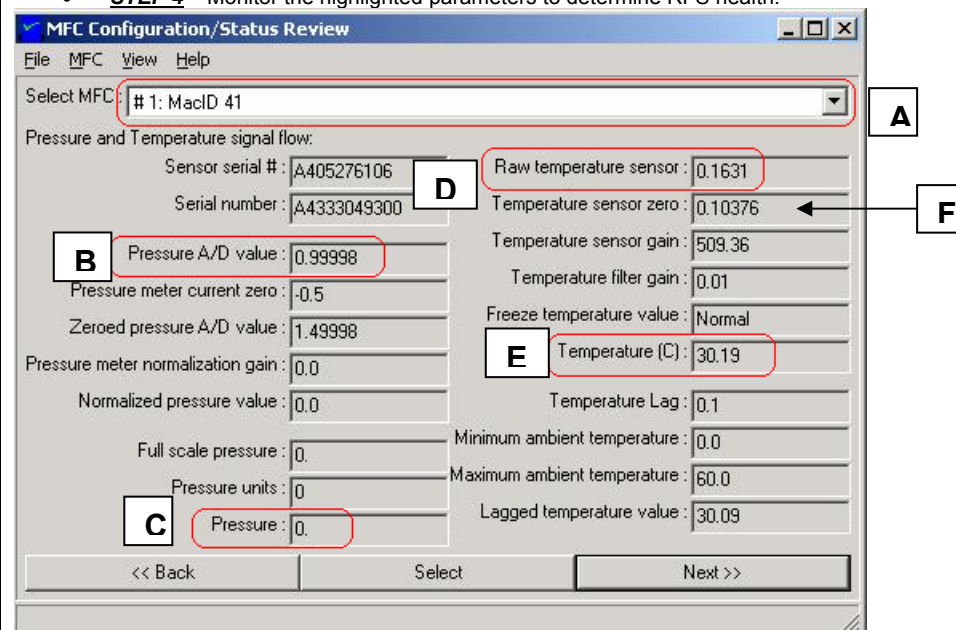
Symptom or problem	Possible causes	Corrective Action
17. No gas flow	- Is the gas supply turned on? - Is the regulator on and at the correct operating pressure? - Are any upstream or downstream shutoff valves closed, either by the system or because of failure? - Are ± 15 VDC power supplies present at the MFC connector? - The MFC's valve close pin is connected to common forcing the MFC closed. - Is the set point on the tool set to 0.00 VDC	- Disconnect the tools power connection from the MFC and connect a UNIT URS-20 power supply to the MFC and command setpoints using the power supply. Ask FSE to open the upstream and downstream pneumatic valves. If the setpoint, flow output are matching there is nothing wrong with the MFC. 2nd Test – Swap power cable from a know good MFC within the Gas Box and have the operator run the MFC from the tools maintenance screen. This will verify the tools cabling.
18. Flow out of range	- Is the gas inlet/outlet pressure differential either too high or too low? - Are ± 15 VDC power supplies present at the MFC connector? - Is the set point correct for the required gas flow? - Is the MFC calibrated for the particular gas?	Reference: (990-100-0069) and FSB-001-0014 - If the differential is too high, MFC valve voltage or drive will be zero or abnormally low for set point. - If the differential is too low, the MFC valve voltage or drive will be at its maximum value or abnormally high for set point.
19 Flow unable to reach setpoint	- Is the gas inlet/outlet pressure differential sufficient? (990-100-0069) - If the upstream and downstream pressures are equal, then there will be no flow. You should have at least 2psi difference. - Is the MFC calibrated for the gas flowing?	Adjust regulator to proper operating pressure if not, replace MFC with properly calibrated unit.
20. No gas flow control at low setpoint on MFC	- Is the gas inlet/outlet differential pressure too high or above published setpoints listed on MFC Spec sheet? - Is MFC calibrated for the gas flowing?	- Adjust the regulator to the proper operating pressure. If not, replace with properly calibrated unit. - If above caused have been ruled out, the MFC valve may be leaking, possibly from contamination. If contamination is suspected, conduct a thorough purge of the system or replace/re-clean contaminated components. Test the valve for leak integrity and replace if leaking.
21. Gas flow or MFC reading oscillates	- Is the MFC calibrated for the gas flowing? - Is there too much gas pressure across the MFC? - Are the inlet and outlet pressures steady?	- If not, replace or configure MFC with the properly calibrated gas and range. Most nitrogen calibrated MFC's will oscillate on helium or hydrogen. - Adjust the regulator to proper operating pressures if necessary. - Check inlet pressure. If erratic, a faulty pressure regulator can make an MFC appear to oscillate - Check output pressure. If erratic, check for a faulty vacuum pump or fluttering downstream valve

Troubleshooting Guide for RFS – Ratiometric Flow Splitter

Symptom or problem	Possible causes	Quick Diagnostic Check Points using CheckMFC Software for RFS
22. Ratio Setpoint doesn't match the Ratio Output or Unstable Flow	- Improper cable positioning on RFS. (Cables are in the wrong locations.) refer to RFS manual 199-001-0010 (Rev B or above) for correct positions - Improper Transducer Zeroing. Refer to RFS manual 199-001-0010 to perform zero procedure. - Mismatched MFC's per RFS serial number. (RFS are factory calibrated and the MFC's are NOT interchangeable.) They come configured as a set of two MFC's. IF ALL ABOVE ARE CORRECT AND COMPLETE CONTINUE TO <u>STEP 1 of Quick Diagnostic Check Points</u>	<u>STEP 1</u> - Connect RJ-12, 15 cm / 6 inch Jumper PN-955-001-0025 Between the two RFS MFC's. Connect your RS-485 jumper cable to one of the two MFC's to talk to the MFC's.  <u>STEP 2</u> - Go online using Check MFC Software.  <u>STEP 3</u> – Press the “Press. and Temp Signals” button (below)

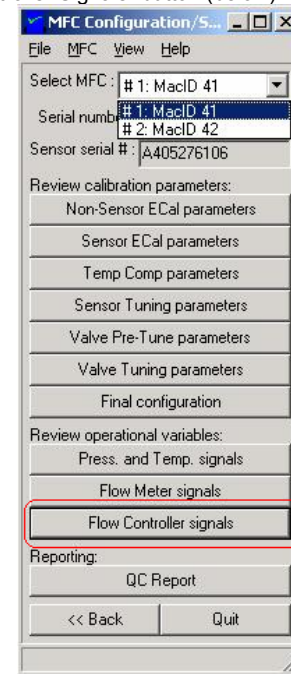


- **STEP 4** – Monitor the highlighted parameters to determine RFS health.

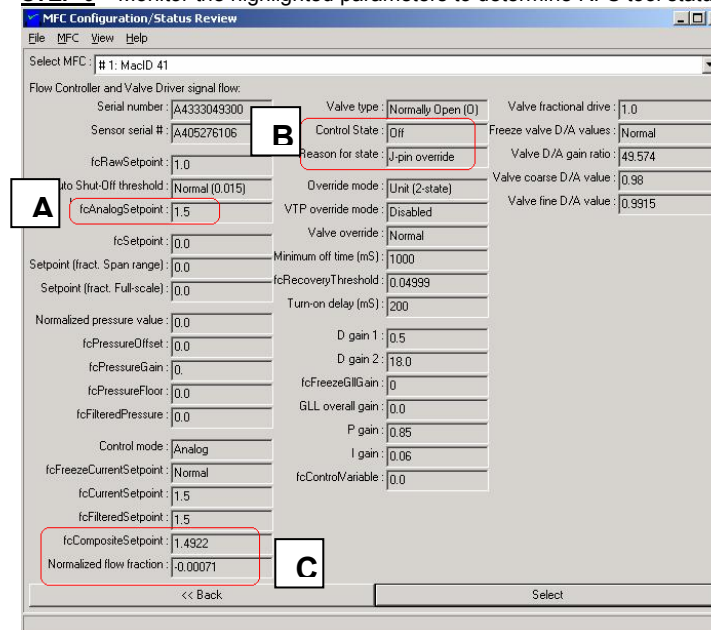


MFC CONFIGURATION / STATUS REVIEW	GOOD 	NOT GOOD 	RESULT
(A) Select MFC (use to switch between MFC)	MacID 41 and MacID 42	Only MacID's 41,42 are valid	Factory set for MacID 41 and 42
(B) Pressure A/D value:	Greater than 0 Less than .9999	0.00 or .9999	Indicates an electrical problem. Check all Electrical readings using Diagnostic 15 pin D sub connector on RFS and break out cable. Electrical Specifications – Listed in user manual 199-001-0010. (Switch between MacID's to compare both MFC values)
(C) Pressure:	At hard vacuum should be 0.00 +/- 5 Torr and < 300 Torr	> 5 Torr under hard vacuum >300 Torr at full scale flow	Perform Pressure transducer zero procedure (Switch between MacID's to compare both MFC values)
(D)Raw Temperature Sensor:	Anything between the value of Temperature sensor Zero (F) and +0.15 Example 0.10376 +.15=.25376	< Temperature sensor Zero reading > Temperature sensor Zero reading + 0.15	Indicates an electrical problem. Check all Electrical readings using Diagnostic 15 pin D sub connector on RFS and break out cable. Electrical Specifications – Listed in user manual 199-001-0010. (Switch between MacID's to compare both MFC values)
(E) Temperature(C):	Anything between 0° C and 60° C	> 0°C < 60° C	If the values are between MFC's are both out of specification, there may be an electrical wiring problem. If one of the MFC's is out side the specification the one MFC may be defective. Replace the complete RFS system

- **STEP 5** - Press “Flow Controller Signals” button (below)



- **STEP 6** – Monitor the highlighted parameters to determine RFS tool status.

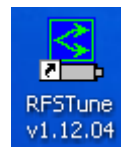


MFC CONFIGURATION / STATUS REVIEW	GOOD 	NOT GOOD 	RESULT
(A) fcAnalogSetpoint:	Tool Setpoint Values (0-5VDC)	No readings 0.00 VDC	Switch between MacID's to compare both fcAnalogSetpoint tool setpoints, they should be the same. If they are different notify FSE tool engineer of the difference in Analog setpoints. This would indicate a tool hardware problem.
(B) Control State: Reason for State: (IMPORTANT IN DETERMINING THE CONTROL STATUS)	Flow Purge Autoshtutoff Setpoint Setpoint NORMAL Off/Tool No Flow In standby	Control State – OFF Control State - Control	Ask the OEM FSE to change states of the RFS by running RFS system on tool. (Switch between MacID's to compare both MFC values)
(B) Control State: Reason for State: Condition: GAS OFF	At ATM should be about -14.7 +,- 10 % Reason for State=Autoshutoff	Any other reading other that Autoshutoff	Ask the OEM FSE to change states of the RFS by running RFS system on tool. (Switch between MacID's to compare both MFC values)
(C) fcCompositeSetpoint	fcCompositeSetpoint should match Normalized Flow Fraction when flowing gas.	fcCompositeSetpoint and Normalized Flow Fraction DO NOT MATCH. Within +/- 15%	Check tool maintenance screen with OEM FSE for improper tool chamber pressures. Check pneumatic valveing for restrictions or low pneumatic valve pressure. (80 pisp is a normal pneumatic pressure) (Switch between MacID's to compare both MFC values)
(C) Normalized Flow Fraction	Normalized Flow Fraction should match fcCompositeSetpoint when flowing gas.	If fcCompositeSetpoint and Normalized Flow Fraction DO NOT MATCH. Within +/- 15%	Check tool maintenance screen with OEM FSE for improper tool chamber pressures. Check pneumatic valving for restrictions or low pneumatic valve pressure. (80 pisp is a normal pneumatic pressure) (Switch between MacID's to compare both MFC values)

24. RFS will not respond

- CRS settings incorrect

- **STEP 1-** Go on line using RFS tune program



- **STEP 2-** Verify that all the circled parameters are correct according to the CSR 0713

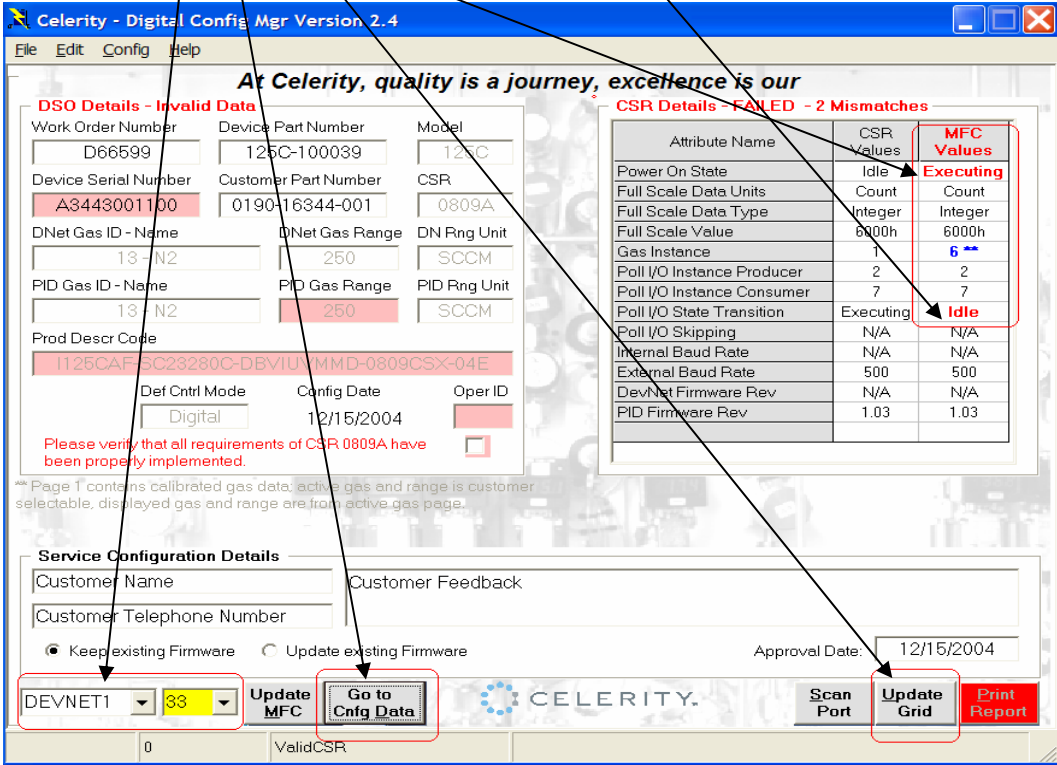
A screenshot of the RFS Configuration window. The window has a blue title bar with the text 'RFS Configuration' and standard window controls. Below the title bar is a menu bar with 'File', 'MFC', and 'Help'. The main area contains various configuration parameters. A dropdown menu at the top shows 'Select MFC : # 2: MacID 42, 3000 SCCM He'. The parameters are arranged in two columns. Several parameters are circled in red: 'fcRecoveryThreshold : 0.04999', 'Soft-Start (mS) : Fast (F or X)', 'Turn-on delay (mS) : 200', 'Minimum off time (mS) : 1000', 'Auto Shut-Off threshold : Normal (0.015)', 'Default control type : Flow', 'fcPressureOffset : 0.1', 'Valve ramp rate : 0.105', 'Override mode : STEC/SEMI(3-State)', 'VTP override mode : Disabled', 'Pressure meter auto-zero warning threshold : 0.03', 'Pressure meter auto-zero limit : 0.10001', 'Pressure meter auto-zero enable : Disabled', 'Requested Zero rate : 0.002', 'Pressure units : Torr', 'Full scale pressure : 250.0', 'Pressure meter normalization gain : 1.667', 'Pressure transducer manufacturer :', 'Pressure transducer part # :', 'Pressure transducer serial # :', and 'Pressure transducer proof pressure (psia) : 100.0'. At the bottom of the window are several buttons: '<< Back', 'Cfg as MFCs', 'Cfg as RFS', 'Update all', 'Tune', and 'Quit'.

RFS Tuning

File MFC Help

Network address :	41	42
Serial number :	A3253031000	A3253031100
Valve override :	Normal	Normal
Pressure A/D value :	0.98734	0.9882
Inlet Pressure (Torr) :	0.0014759	0.0017042
fcSetpointZero :	0.0	1.0
fcSetpointGain :	1.5	-1.0
fcPressureGain :	1.3778	1.0333
fcCurrentSetpoint :	0.4008	0.4003
Normalized pressure value :	0.00001	0.00001
fcCompositeSetpoint :	0.0	0.0
fmFractionalFlow :	0.00015	-0.00004
P gain :	0.85	0.85
I gain :	0.06	0.05
D gain 1 :	0.5	0.5
D gain 2 :	20.0	18.0
Valve pedestal :	0.6	0.73

<< Back Accept Quit

Symptom or problem	Possible causes	Correcting or Changing CSR Parameters for all DeviceNET MFC's including the IFC-125																																										
24. Correcting or Changing a CSR	- CSR not set correctly from the factory - Process Tool software changed a CSR setting - Process Tool requires different CSR to operate MFC	Correcting a CSR using Dconfigmgr. (Version 2.5 or Greater Required) STEP 1 – Disconnect the Tool DNET cable from the MFC and Connect your SST card and Laptop. STEP 2 – Click on Dconfigmgr icon Ver. 2.5.2.X or greater  STEP 3 – Select DEVNET1 port selection and Mac ID. (COM 1 or 2 are used for RS-485 only) STEP 4 –Press “Go To Config Data” button. STEP 5 –Press the “Update Grid” to refresh CSR settings The example below shows that the Power On State and Poll I/O State Transition are incorrect.  CSR Details - FAILED - 2 Mismatches <table border="1"> <thead> <tr> <th>Attribute Name</th> <th>CSR Values</th> <th>MFC Values</th> </tr> </thead> <tbody> <tr> <td>Power On State</td> <td>Idle</td> <td>Executing</td> </tr> <tr> <td>Full Scale Data Units</td> <td>Count</td> <td>Count</td> </tr> <tr> <td>Full Scale Data Type</td> <td>Integer</td> <td>Integer</td> </tr> <tr> <td>Full Scale Value</td> <td>6000h</td> <td>6000h</td> </tr> <tr> <td>Gas Instance</td> <td>1</td> <td>6</td> </tr> <tr> <td>Poll I/O Instance Producer</td> <td>2</td> <td>2</td> </tr> <tr> <td>Poll I/O Instance Consumer</td> <td>7</td> <td>7</td> </tr> <tr> <td>Poll I/O State Transition</td> <td>Executing</td> <td>Idle</td> </tr> <tr> <td>Poll I/O Skipping</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Internal Baud Rate</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>External Baud Rate</td> <td>500</td> <td>500</td> </tr> <tr> <td>DevNet Firmware Rev</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>PID Firmware Rev</td> <td>1.03</td> <td>1.03</td> </tr> </tbody> </table>	Attribute Name	CSR Values	MFC Values	Power On State	Idle	Executing	Full Scale Data Units	Count	Count	Full Scale Data Type	Integer	Integer	Full Scale Value	6000h	6000h	Gas Instance	1	6	Poll I/O Instance Producer	2	2	Poll I/O Instance Consumer	7	7	Poll I/O State Transition	Executing	Idle	Poll I/O Skipping	N/A	N/A	Internal Baud Rate	N/A	N/A	External Baud Rate	500	500	DevNet Firmware Rev	N/A	N/A	PID Firmware Rev	1.03	1.03
Attribute Name	CSR Values	MFC Values																																										
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External Baud Rate	500	500																																										
DevNet Firmware Rev	N/A	N/A																																										
PID Firmware Rev	1.03	1.03																																										

STEP 6 – Press **Update MFC** to correct CSR mismatches.

STEP 7-Press the **YES** button to complete the changing of the parameters.

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DSO Details - Invalid Data

Work Order Number	Device Part Number	Model
D66599	125C-100039	125C
Device Serial Number	Customer Part Number	CSR
A3443001100	0190-16344-001	0809A
DNet Gas ID - Name	DNet Gas Range	DN Rng Unit
15 - O2	250	SCCM
PID Gas ID - Name	PID Gas Range	PID Rng Unit
15 - O2	250	SCCM
Prod Descr Code		
1125CAF-SC23280C-DBVIUVMMD-0809CSX-04E		
Def Cntrl Mode	Config Date	Oper ID
Digital	1/12/2005	

Please verify that all requirements of CSR 0809A have been properly implemented.

CSR Details - FAILED - 1 Mismatch

Attribute Name	CSR Values	MFC Values
Power On State	Idle	Idle
Full Scale Data Units	Count	SCCM
Full Scale Data Type	Integer	Integer
Full Scale Value	6000h	6000h
Gas Instance	1	6 **
Poll I/O Instance Producer	2	2
Poll I/O Instance Consumer	7	7
Poll I/O State Transition	Executing	Executing
Poll I/O Skipping	N/A	N/A
Internal Baud Rate	N/A	N/A
External Baud Rate	500	500
DevNet Firmware Rev	N/A	N/A
PID Firmware Rev	1.03	1.03

Update MFC

This function may modify MFC parameters. Do you want to continue?

Yes No

Service Configuration Details

Customer Name: [] Customer Feedback: []

Customer Telephone Number: []

☒ Keep existing Firmware ☐ Update existing Firmware

Approval Date: 1/12/2005

DEVNET1 33 **Update MFC** Go to Cnfg Data

CELERITY

Scan Port Update Grid Print Report

The LED's on the MFC will cycle on and off to complete changes to factory CSR

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DSO Details - Invalid Data

Work Order Number	Device Part Number	Model
D66599	125C-100039	125C
Device Serial Number	Customer Part Number	CSR
A3443001100	0190-16344-001	0809A
DNet Gas ID - Name	DNet Gas Range	DN Rng Unit
15 - O2	250	SCCM
PID Gas ID - Name	PID Gas Range	PID Rng Unit
15 - O2	250	SCCM
Prod Descr Code		
1125CAF-SC23280C-DBVIUVMMD-0809CSX-04E		
Def Cntrl Mode	Config Date	Oper ID
Digital	1/12/2005 12:05:08	

Please verify that all requirements of CSR 0809A have been properly implemented.

CSR Details - PASSED

Attribute Name	CSR Values	MFC Values
Power On State	Idle	Idle
Full Scale Data Units	Count	Count
Full Scale Data Type	Integer	Integer
Full Scale Value	6000h	6000h
Gas Instance	1	6 **
Poll I/O Instance Producer	2	2
Poll I/O Instance Consumer	7	7
Poll I/O State Transition	Executing	Executing
Poll I/O Skipping	N/A	N/A
Internal Baud Rate	N/A	N/A
External Baud Rate	500	500
DevNet Firmware Rev	N/A	N/A
PID Firmware Rev	1.03	1.03

Update MFC

Service Configuration Details

Customer Name: [] Customer Feedback: []

Customer Telephone Number: []

☐ Keep existing Firmware ☒ Update existing Firmware

Approval Date: 1/12/2005

DEVNET1 33 **Update MFC** Go to Cnfg Data

CELERITY

Scan Port Update Grid Print Report

The CSR setting will be updated to the current factory CSR settings.

STEP 8 – Exit Dconfigmgr and disconnect the DNET cable.

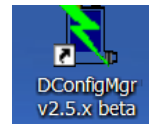
STEP 9 –Reconnect the DNET cable and repeat Steps 1 thru 5 to verify that your changes have been made. (This is only a safety measure.)

You are complete! Re-connect the MFC to the Process Tool DNET cable.

Changing a CSR using Dconfigmgr in manual override mode. (Version 2.5 or Greater Required)

STEP 1 – Disconnect the Tool DNET cable from the MFC and Connect your SST card and Laptop.

STEP 2 - Click on Dconfigmgr icon Ver. 2.5 or greater



STEP 3 – Select DEVNET1 port selection. (COM 1 or 2 are used for RS-485 only)

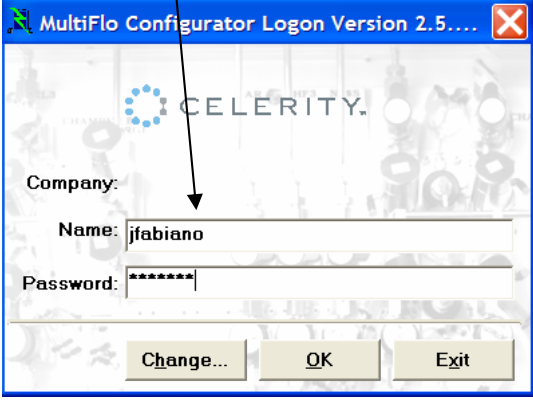
STEP 4 - Select **CONFIG** drop down menu and then select **Portable Access** shown below.

The screenshot shows the 'Celerity - Digital Config Mgr Version 2.5.2_beta' application window. The 'Config' menu is open, and 'Portable Access' is selected. The main window displays configuration details for a CSR (125C) and a table of CSR details.

CSR Details - FAILED - 2 Mismatches

Attribute Name	CSR Values	MFC Values
Power On State	Idle	Executing
Full Scale Data Units	Count	SCCM
Full Scale Data Type	Integer	Integer
Full Scale Value	6000h	6000h
Gas Instance	1	6
Poll I/O Instance Producer	2	2
Poll I/O Instance Consumer	7	7
Poll I/O State Transition	Executing	Executing
Poll I/O Skipping	N/A	N/A
Internal Baud Rate	N/A	N/A
External Baud Rate	500	500
DevNet Firmware Rev	N/A	N/A
PID Firmware Rev	1.03	1.03

STEP 5 – ENTER Your User Name and Password.



MultiFlo Configurator Logon Version 2.5....

CELERITY.

Company:

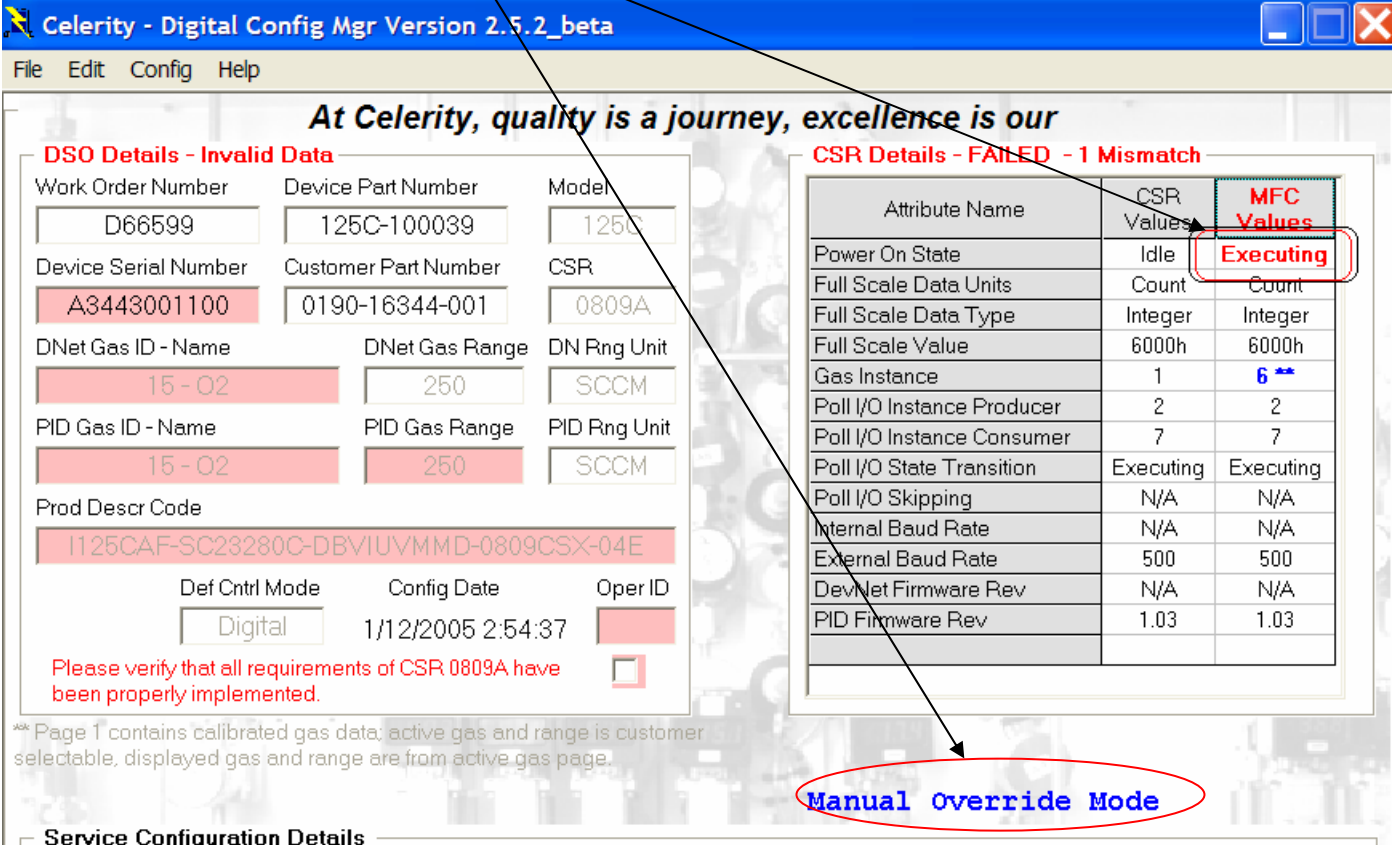
Name: jfabiano

Password: *****

Change... OK Exit

STEP 6 – Once you are in “Manual Override Mode” you can change the MFC CSR Values.

The Example below shows the Power On State displayed “Executing” as the power on state.



Celerity - Digital Config Mgr Version 2.5.2_beta

File Edit Config Help

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DSO Details - Invalid Data

Work Order Number	Device Part Number	Model
D66599	125C-100039	125C
Device Serial Number	Customer Part Number	CSR
A3443001100	0190-16344-001	0809A
DNet Gas ID - Name	DNet Gas Range	DN Rng Unit
15 - O2	250	SCCM
PID Gas ID - Name	PID Gas Range	PID Rng Unit
15 - O2	250	SCCM
Prod Descr Code		
I125CAF-SC23280C-DBVIUVMMD-0809CSX-04E		
Def Cntrl Mode	Config Date	Oper ID
Digital	1/12/2005 2:54:37	

Please verify that all requirements of CSR 0809A have been properly implemented.

*** Page 1 contains calibrated gas data; active gas and range is customer selectable, displayed gas and range are from active gas page.

CSR Details - FAILED - 1 Mismatch

Attribute Name	CSR Values	MFC Values
Power On State	Idle	Executing
Full Scale Data Units	Count	Count
Full Scale Data Type	Integer	Integer
Full Scale Value	6000h	6000h
Gas Instance	1	6 **
Poll I/O Instance Producer	2	2
Poll I/O Instance Consumer	7	7
Poll I/O State Transition	Executing	Executing
Poll I/O Skipping	N/A	N/A
Internal Baud Rate	N/A	N/A
External Baud Rate	500	500
DevNet Firmware Rev	N/A	N/A
PID Firmware Rev	1.03	1.03

Manual Override Mode

Service Configuration Details

STEP 7- Delete the Executing and type in **Idle** into detail box. Continue making any other changes.

STEP 8- Press **ENTER** when you have changed all the CSR values required.

Celerity - Digital Config Mgr Version 2.5.2_beta

File Edit Config Help

At Celerity, quality is a journey, excellence is our

DSO Details - Invalid Data

Work Order Number	Device Part Number	Model
D66599	125C-100039	125C
Device Serial Number	Customer Part Number	CSR
A3443001100	0190-16344-001	0809A
DNet Gas ID - Name	DNet Gas Range	DN Rng Unit
15 - O2	250	SCCM
PID Gas ID - Name	PID Gas Range	PID Rng Unit
15 - O2	250	SCCM
Prod Descr Code		
I125CAF-SC23280C-DBVIUVMMD-0809CSX-04E		
Def Cntrl Mode	Config Date	Oper ID
Digital	1/12/2005 11:49:51	

Please verify that all requirements of CSR 0809A have been properly implemented.

CSR Details - FAILED - 2 Mismatches

Attribute Name	CSR Values	MFC Values
Power On State	Idle	Idle
Full Scale Data Units	Count	SCCM
Full Scale Data Type	Integer	Integer
Full Scale Value	6000h	6000h
Gas Instance	1	6 **
Poll I/O Instance Producer	2	2
Poll I/O Instance Consumer	7	7
Poll I/O State Transition	Executing	Executing
Poll I/O Skipping	N/A	N/A
Internal Baud Rate	N/A	N/A
External Baud Rate	500	500
DevNet Firmware Rev	N/A	N/A
PID Firmware Rev	1.03	1.03

Manual Override Mode

Service Configuration Details

Customer Name Customer Feedback

Celerity - Digital Config Mgr Version 2.5.2_beta

File Edit Config Help

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DSO Details - Invalid Data

Work Order Number	Device Part Number	Model
D66599	125C-100039	125C
Device Serial Number	Customer Part Number	CSR
A3443001100	0190-16344-001	0809A
DNet Gas ID - Name	DNet Gas Range	DN Rng Unit
15 - O2	250	SCCM
PID Gas ID - Name	PID Gas Range	PID Rng Unit
15 - O2	250	SCCM
Prod Descr Code		
1125CAF-SC23280C-DEVIUVM		
Def Cntrl Mode	Config	
Digital	1/12/20	

Please verify that all requirements of CSR been properly implemented.

CSR Details - PASSED

Attribute Name	CSR Values	MFC Values
Power On State	Idle	Executing
Full Scale Data Units	Count	Count
Full Scale Data Type	Integer	Integer
Full Scale Value	6000h	6000h
Gas Instance	1	6 **
Poll I/O Instance Producer	2	2
Poll I/O Instance Consumer	7	7
Poll I/O State Transition	Executing	Executing
...	N/A	N/A
...	N/A	N/A
...	500	500
...	N/A	N/A
...	1.03	1.03

DConfigMgr - MFC Resetting...

Wait for LEDs to turn solid green, before you press the 'OK' button!

OK

Service Configuration Details

Customer Name	Customer Feedback
Customer Telephone Number	

Manual Override Mode

STEP 9 – Wait for the LEDs to turn solid green and then Press **OK** to store the new values. Your new valves have been stored

STEP 10 –Reconnect the DNET cable and repeat Steps 1 thru 5 to verify that your changes have been made. (This is only a safety measure.)

You are complete! Re-connect the MFC to the Process Tool DNET cable.