Sevenstar

CS200 DIGITAL MFC SOFTWARE 2.0

ESL Elektronik Handels GmbH
Hauptstrasse 8
85630 Harthausen
Germany

Tel: +49 (0)8106 37741-0
Fax: +49 (0)8106 37741-10
Web: www.esl-elektronik.de
E-Mail. info@esl-elektronik.de

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85630 Harthausen
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Fax: +49 (0)8106 37741-10
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Introduction

CS200 software is a user-friendly interface used to control CS200 serials Mass Flow Controllers and Meters. It provides such main functions as to control and display instant flow rate, change valve mode, Set alarm and warning, Data saving etc.

PC Specifications

Minimum PC Requirements

CPU: P4 1.5GHz

Memory: 256Mb

Port: RS485 Converter from Serial COM or USB port

Operating system: Windows XP or Windows2000 SP4

Operating Instructions

Software START

After starting, the program will automatically search for a connected MFC.

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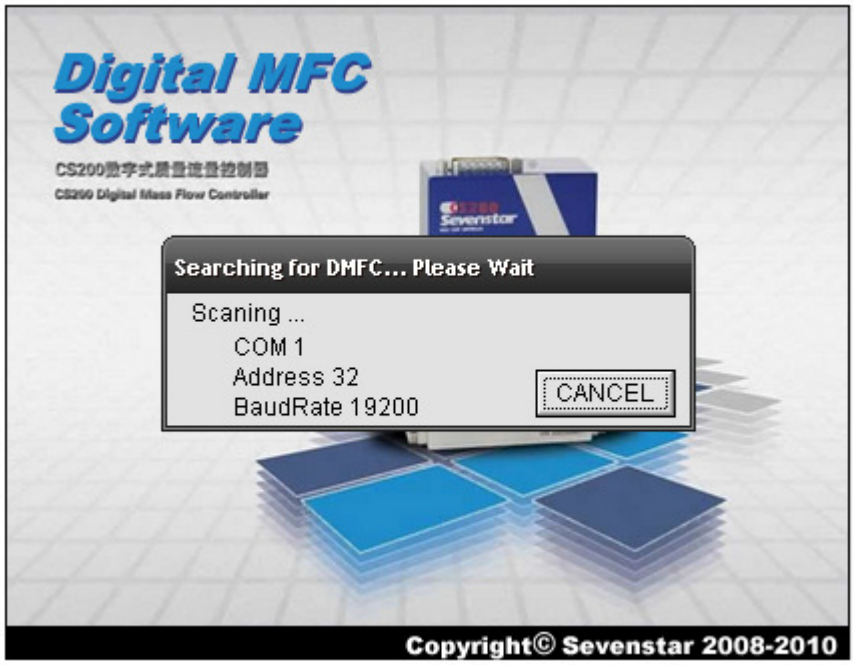


1. Address: from 32 to 96

2. Baud rate : 19200, 9600,4800,2400,1200

3. COM Port No.: starts from 1

Interface Introduction

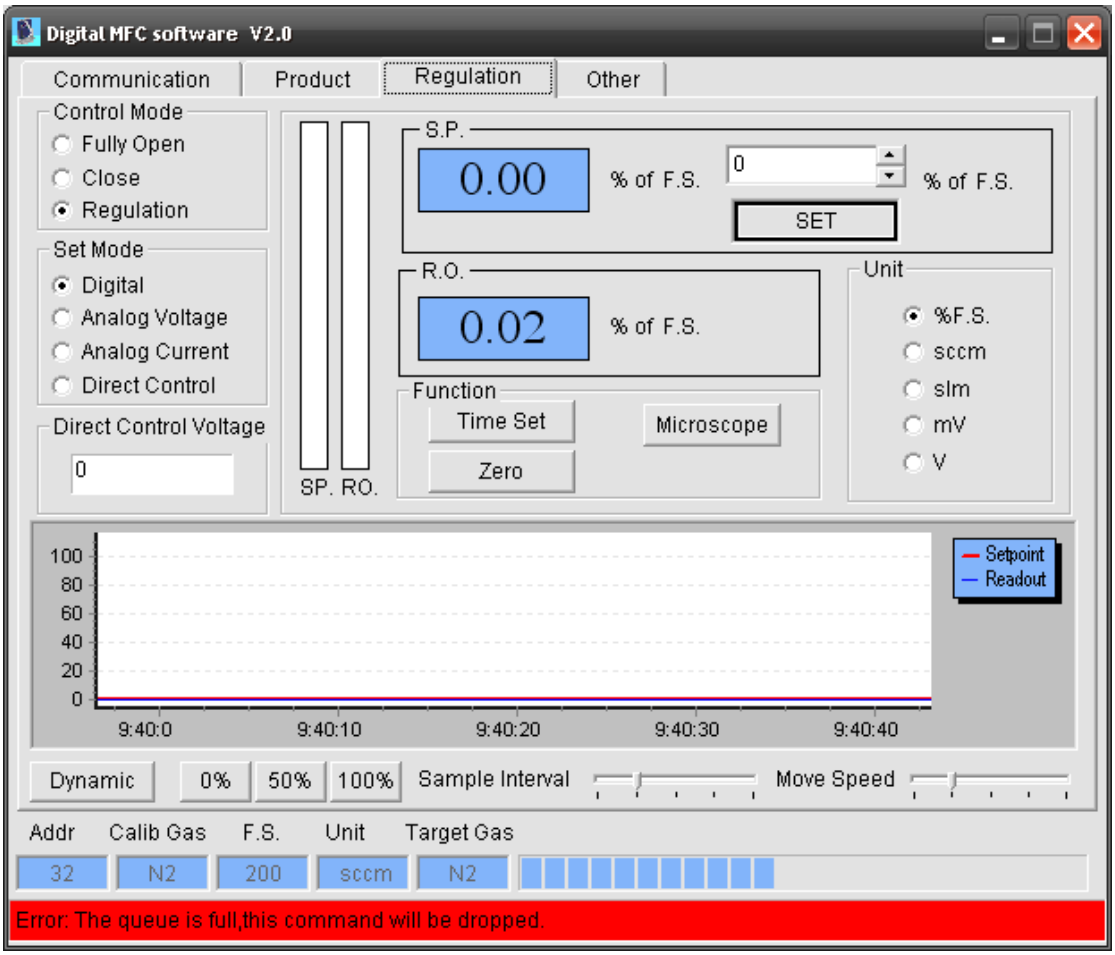
After finding the MFC, the program will enter the main screen.

The main screen includes four tabs:

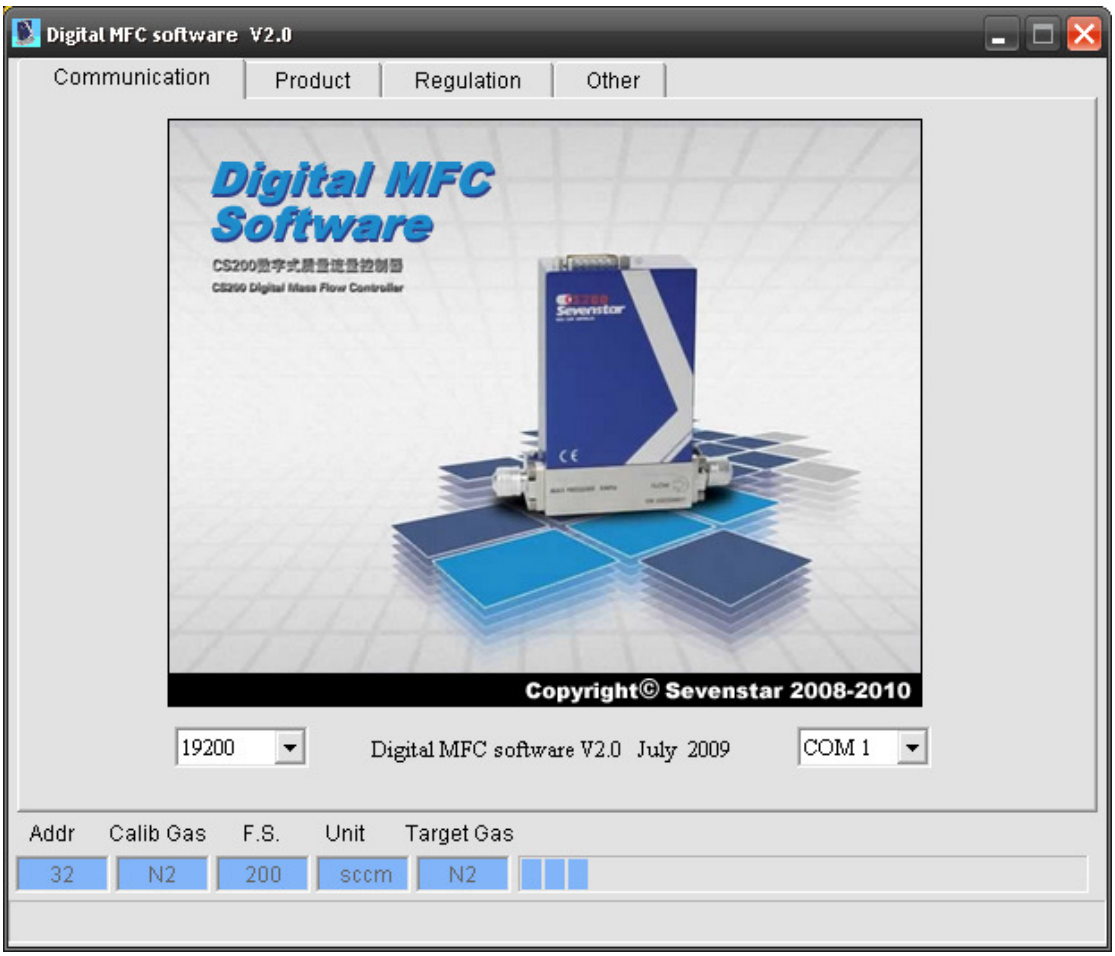
- Communication
- Product info
- Regulation
- Others

In all tabs a status line, showing Address, Calibration Gas, Full Scale, Flow Unit, Target Gas and a bar indicating communication progress will be displayed in the lower part of the screen.

When communication is interrupted, an error message will be shown below the status line.



Communication Tab



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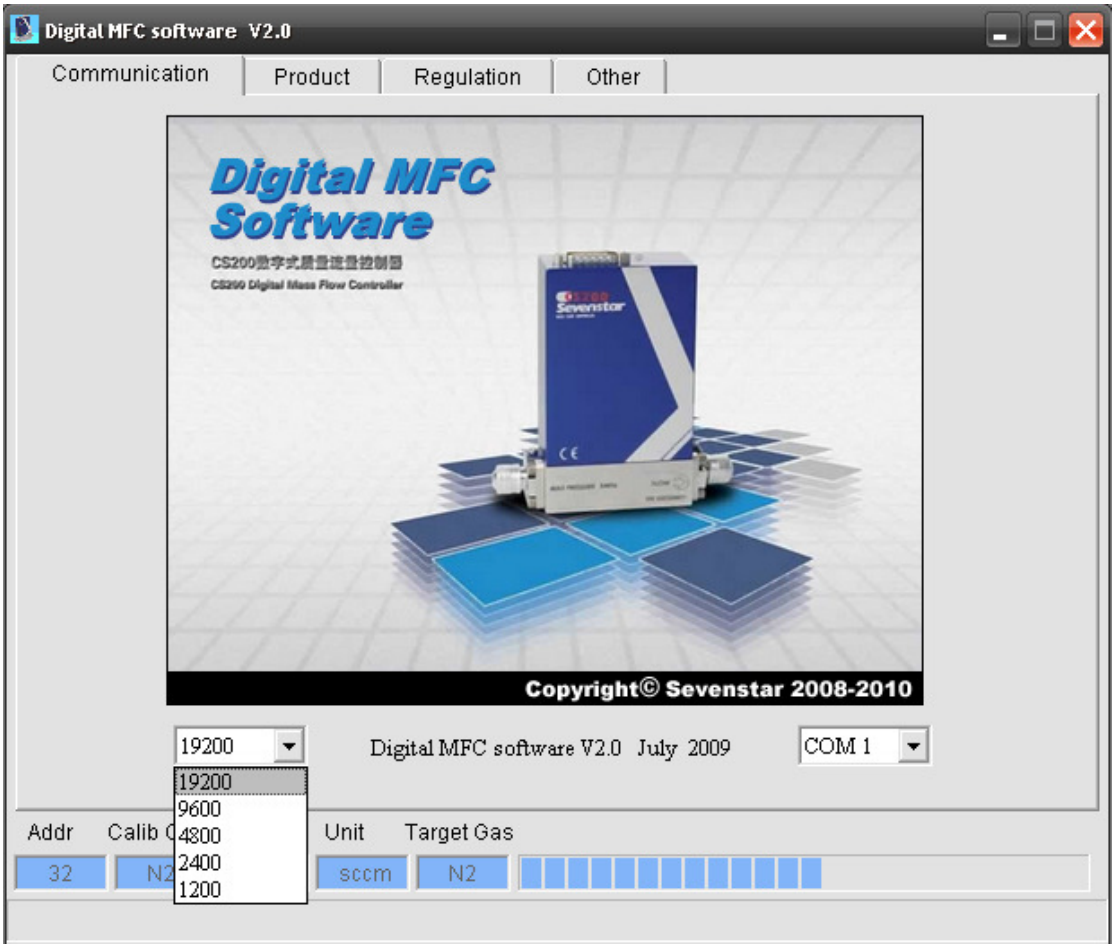
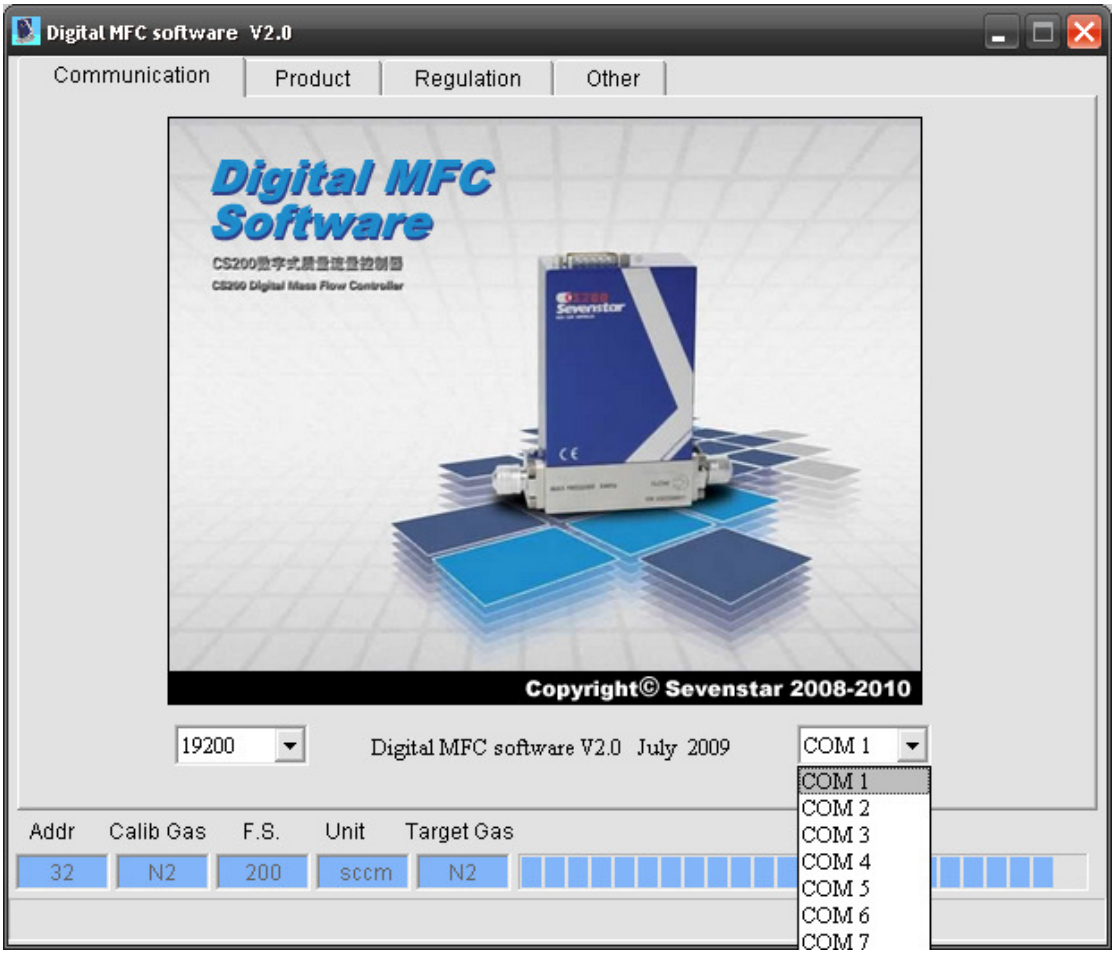
Baud Rate and COM port can be selected from the dropdown menu in this tab.

Baud Rates of 19200, 9600,4800,2400,1200 bps are available for selection.



For special PC configurations, the COM Port can be selected from the drop down menu, from COM1 to COM8. Normally, the software will automatically find the appropriate COM port during search.

After changing COM port, software will search for the MFC in new COM port.



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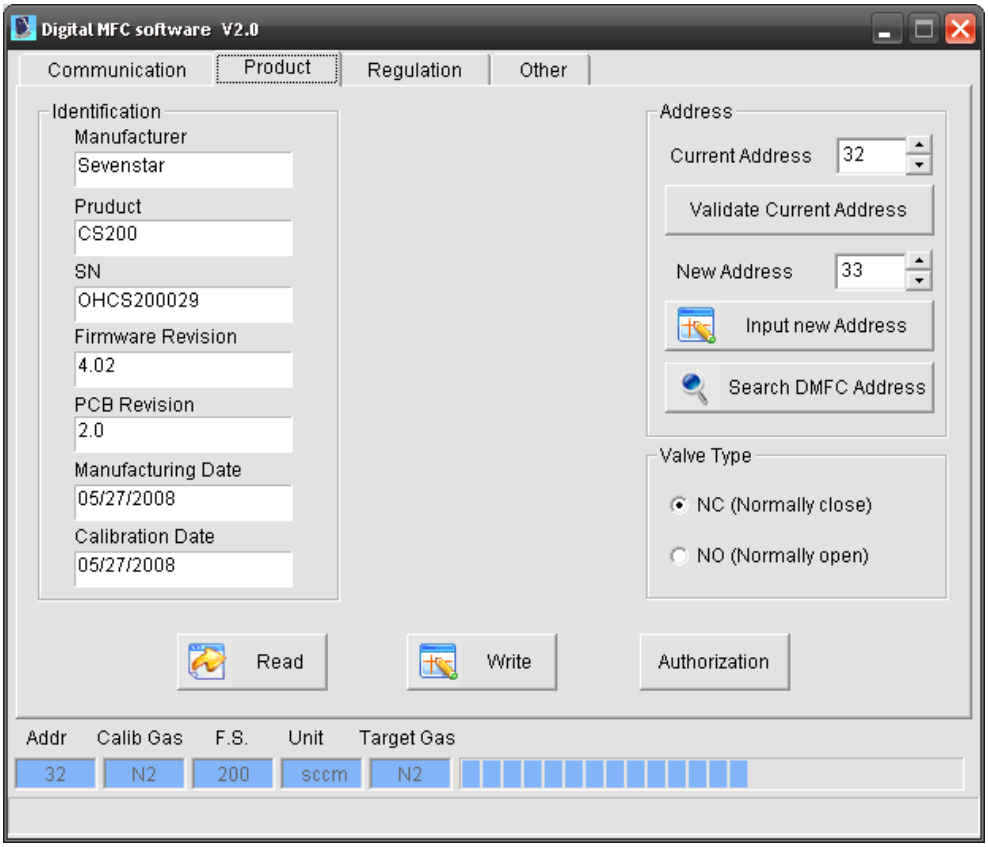
Product Tab



In this screen, basic information of the product is displayed, including Identification, Address, and Valve type.

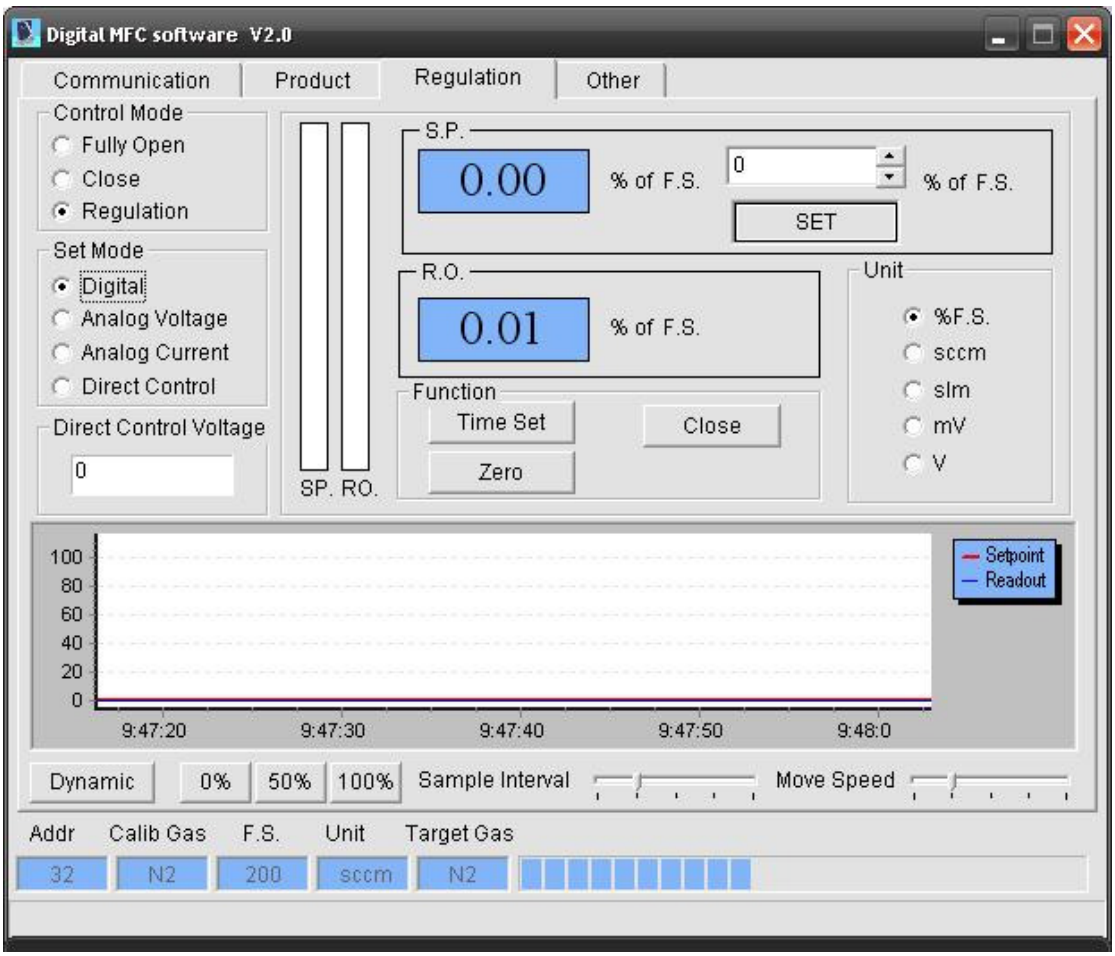
Manufacturing information is shown in the Identification group. The Valve type, NC or NO, are read only parameters.

For changing to a new address, input new address, and then click "Validate Current Address" button.

Address can be changed from 32 to 96. When communicating with RS485, using more than one MFC, each MFC must be set to a unique address.

After clicking the "Search DMFC Address" button, the software will start a new search for the MFC.

Regulation (Control) Tab



Control Mode (Valve):

In Valve Control Mode, there are three options, "purge" will set the valve to its full open position. "Close" will shut off the valve. In either of these modes, the setpoint signal will be inactive. In "Regulation", setpoint signal will be active and will control the position of the valve to achieve the desired flow.

Note: the solenoid valve can not be used as shut-off valve.

"Valve Control Mode" is available only in the "Digital" set mode (See below)

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Set Mode (Control):

In the "Digital" mode, the RS485 communication will be activ2, and the flow rate will be set (setpoint) and read through software.

In the "Analog Voltage" mode, MFC will receive the setpoint as a 0-5Vdc signal and will provide back the flow rate signal (0-5Vdc).

In the "Analog Current" mode, MFC will receive a 4-20mA current setpoint signal and will provide back the flow rate signal (4-20mA).

Using the "Direct Control" mode, the valve can be controlled directly by entering a specific value (0-65535).

The "Direct Control" mode is for diagnostic purposes only and it is not recommended to be used as a flow control mechanism.

S.P. (Flow Setting):

Set flow rate:

Input value directly, then click "set" button to activate. Default units are in percent of Full Scale. Units can be set by selecting the applicable choice.

Function

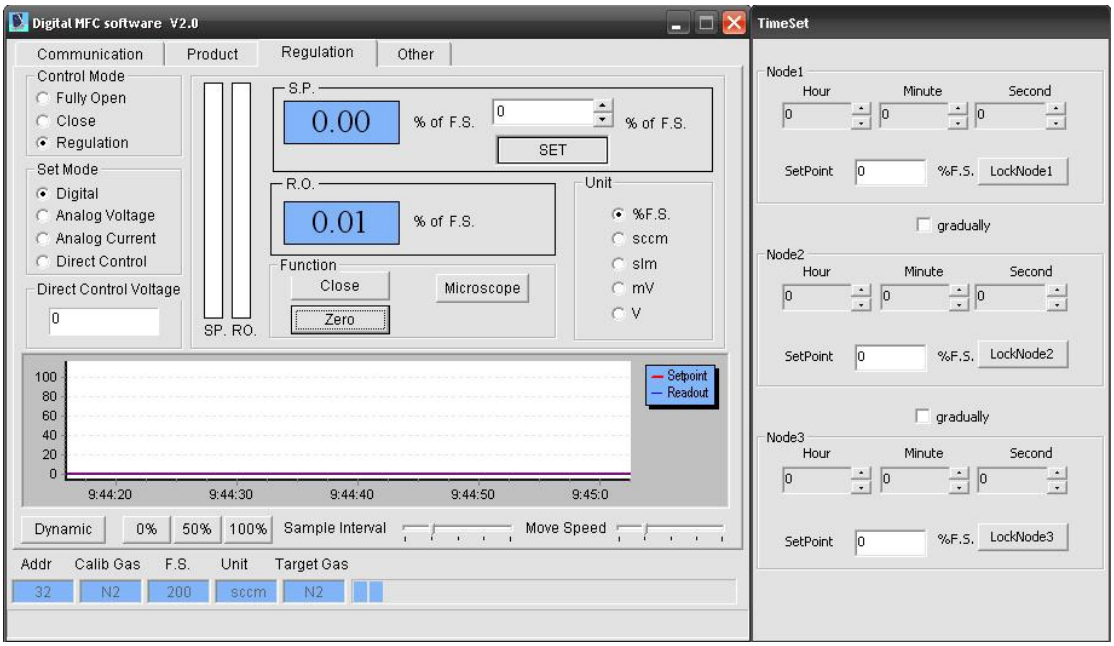
Zero:

Click "Zero" to command the MFC to zero itself.

Before initiating the Zero operation, make sure that the MFC has been warmed up at least 20minutes and that there is no gas flow. The best way

to insure that there is no flow through the valve is to Zero the MFC only when there is no pressure difference between the inlet and outlet gas ports.

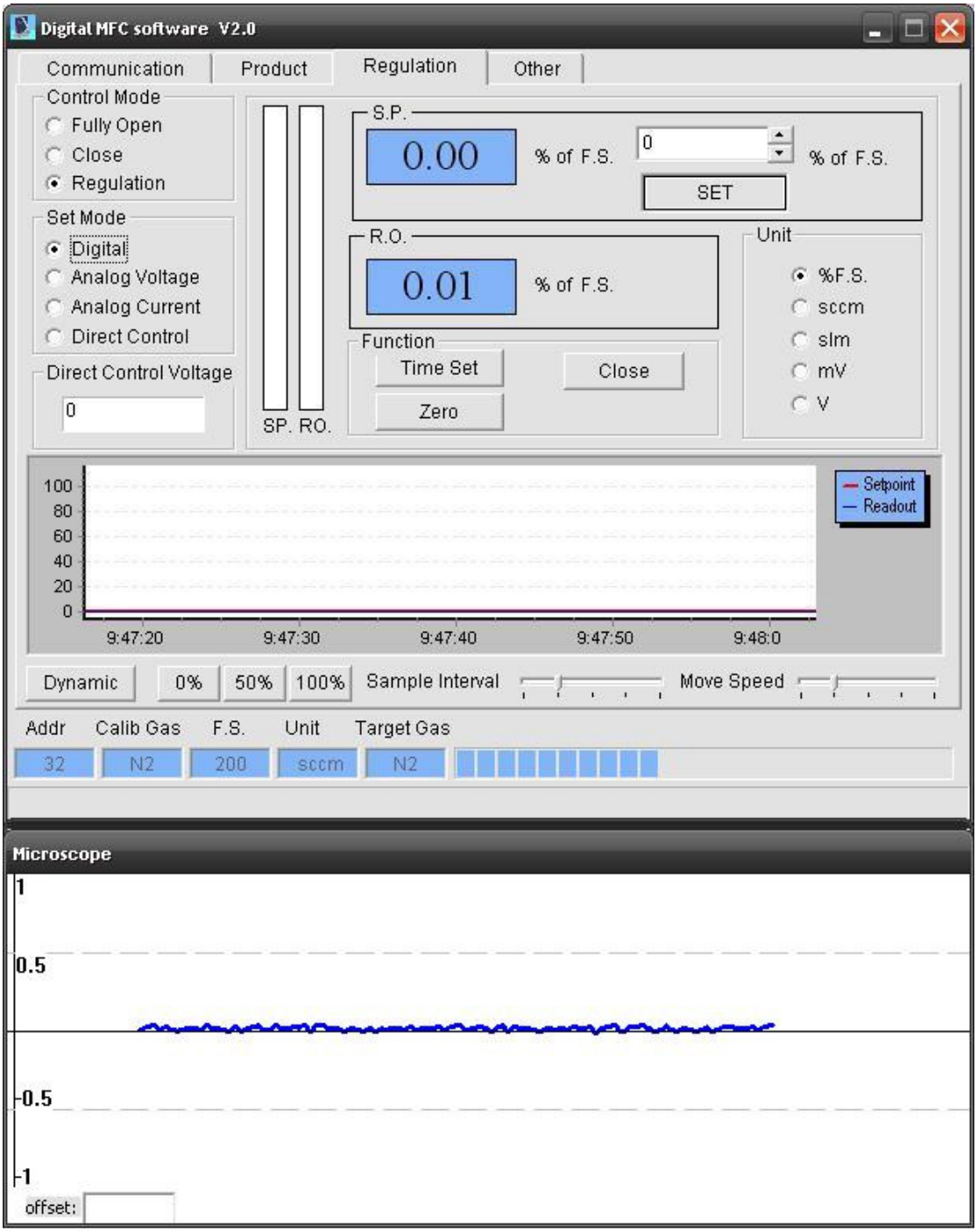
Time Set:



Click the "Time Set" button. There will be a new screen shown on the right side of the main screen, providing 3 nodes, through which users can simulate a simple sequential process. After setting the time and setpoint of each node, "lock" the node. When the system clock reaches a node time, the setpoint will be automatically changed to its programmed value. If the "gradually" button is selected, the setpoint will change at a calculated rate until it reaches its final value.

The time in this software is acquired from the operating system. Time of nodes must be set chronologically increasing.

Microscope:



The "Microscope" function provides a zoomed-in curve to observe the flow signal in detail (±1%F.S.). When clicking the "Microscope" button, a new screen will be activated below the main screen.

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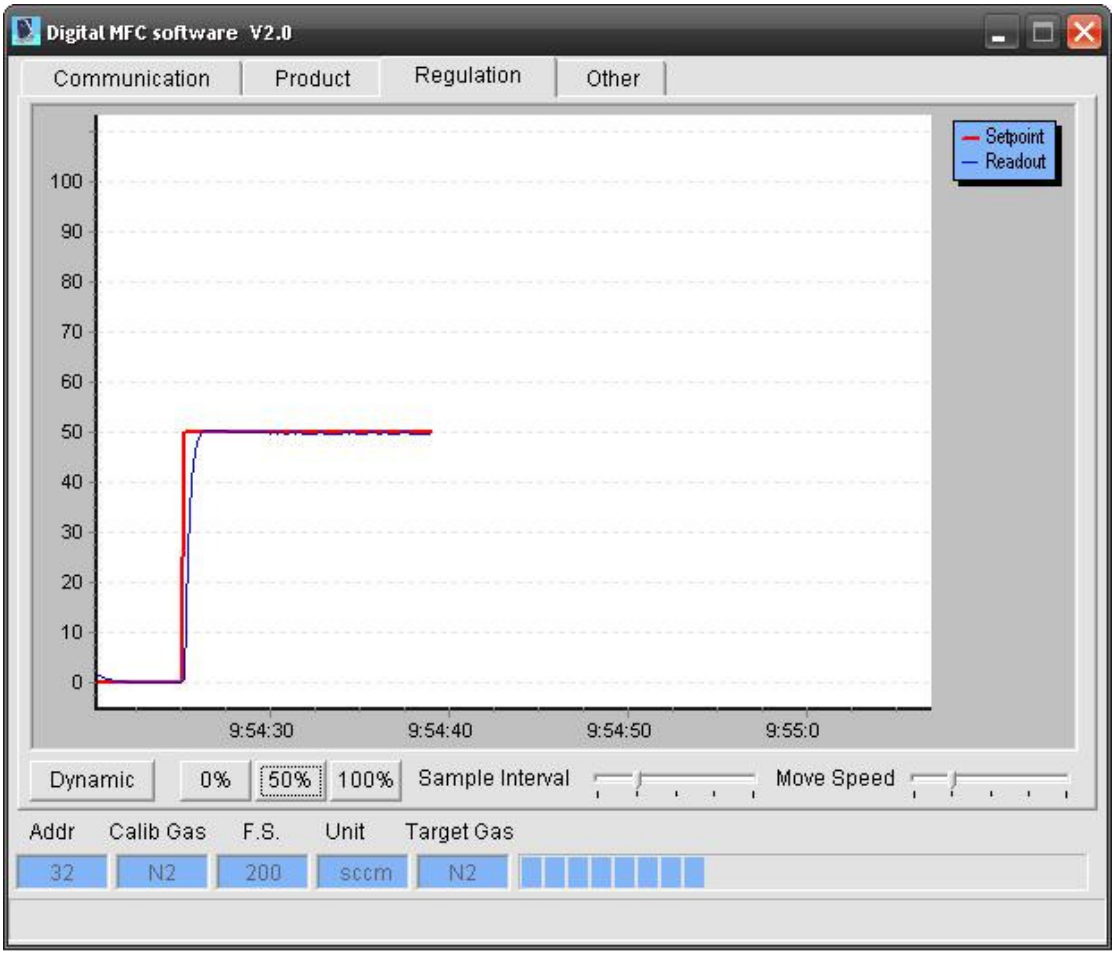
Magnified Flow Plot:



The curves of Setpoint and Readout flow can be displayed in a magnified screen by right-clicking the flow plot area and selecting "magnify".

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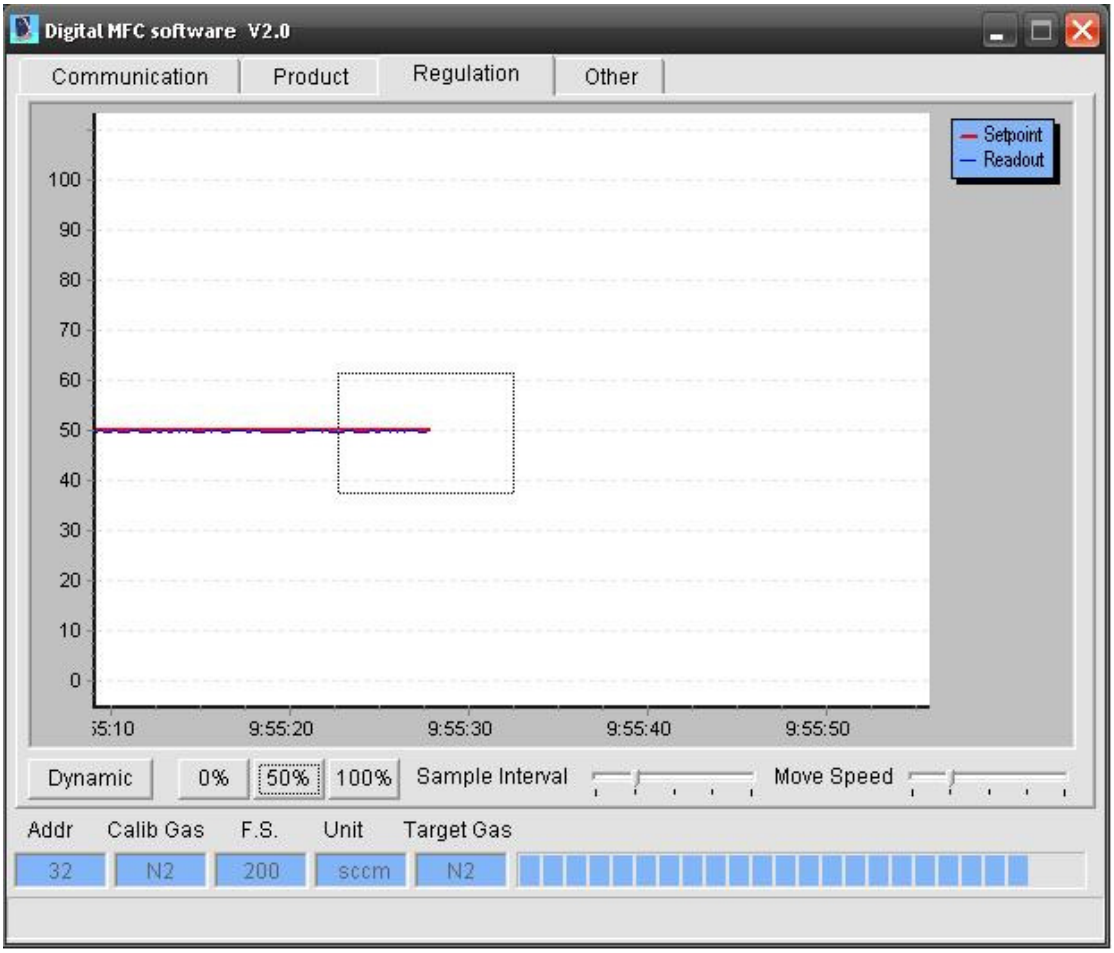
A selected portion of the plot can be zoomed into by left-clicking and dragging.



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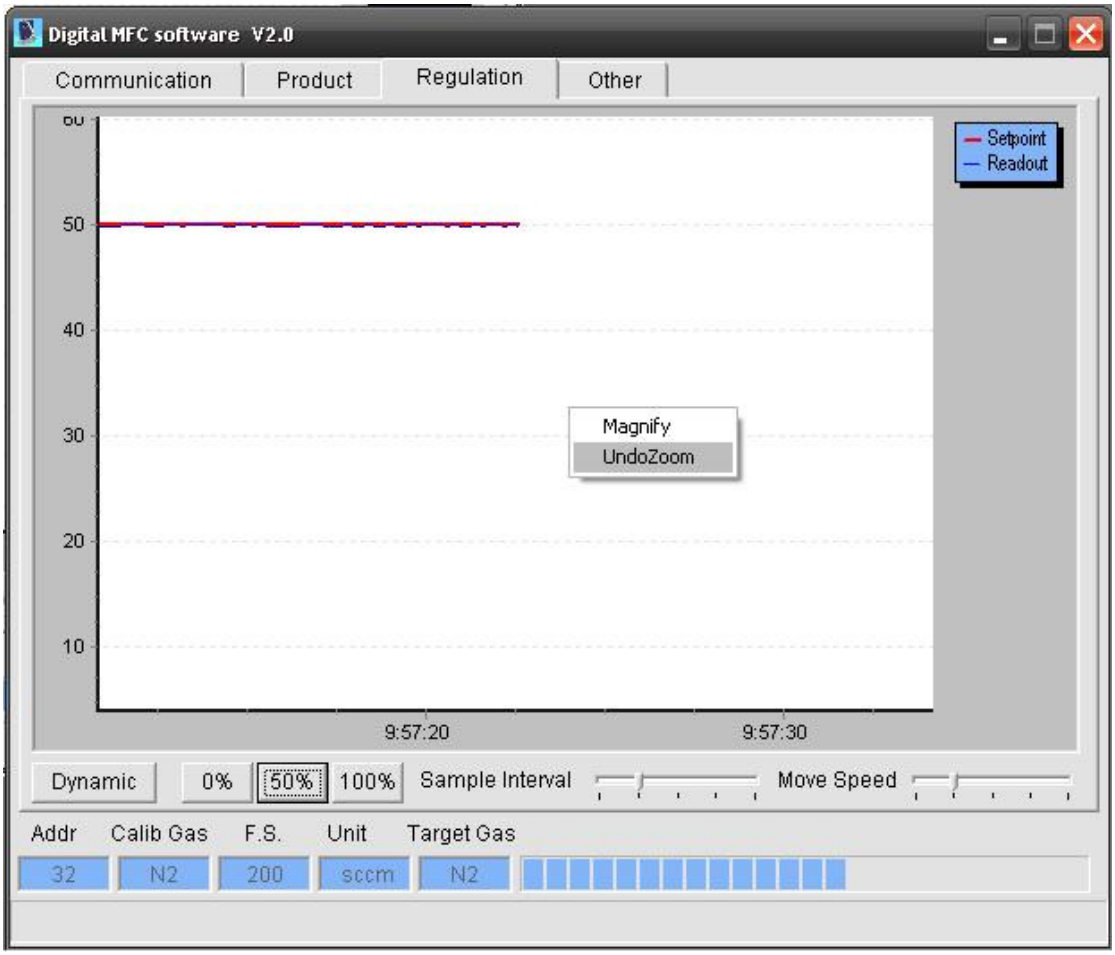
Right-click in the screen to select "UndoZoom".

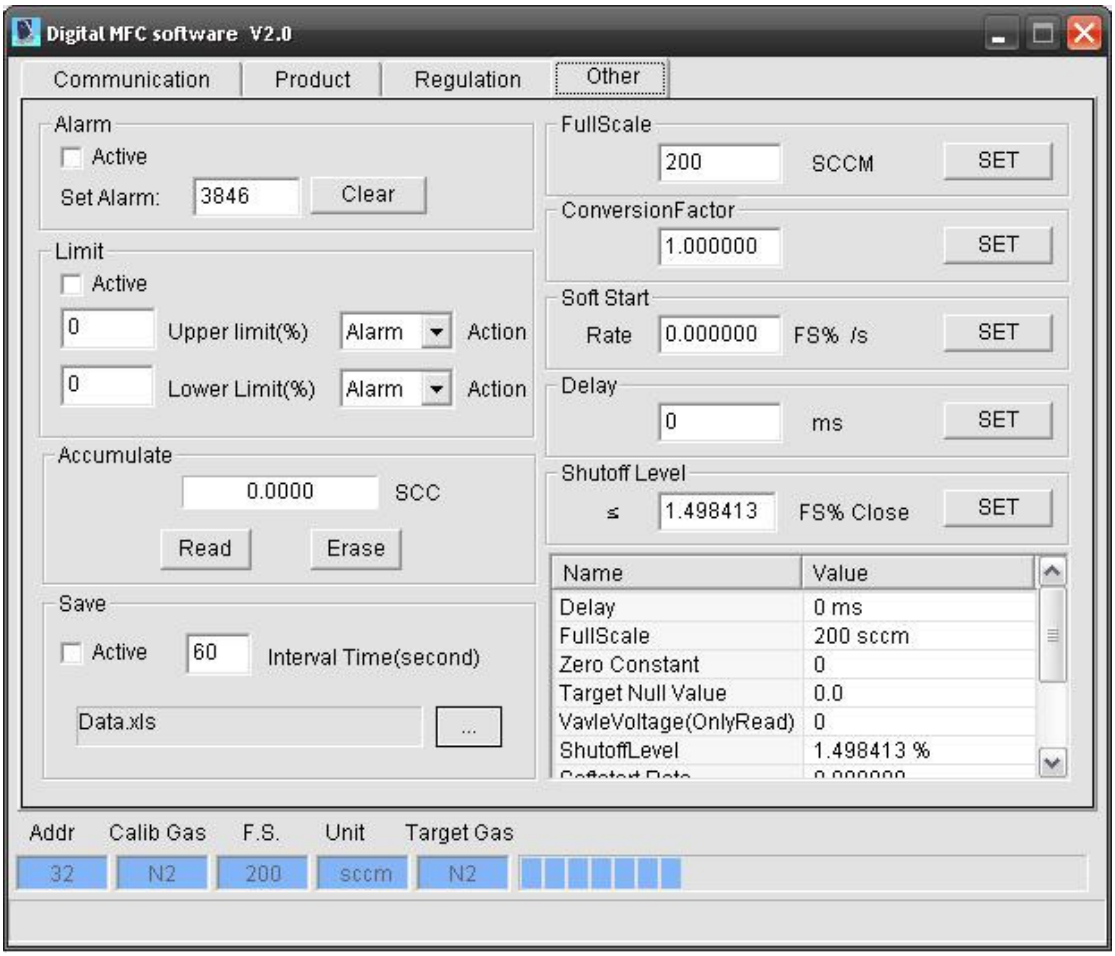


The graph will scroll with time. By clicking the "Dynamic" button, the user can stop scrolling. The user can also change the sample rate of the curve by dragging the "sample interval" slide control.

After changing the sample interval, the plot will re-initialize.

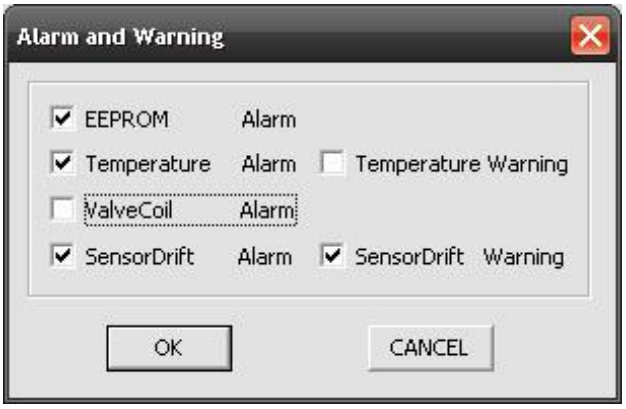
By right-holding and dragging, the user can review previous history. By dragging the "Move Speed" slide control, the user can change the scrolling speed.

Others Tab

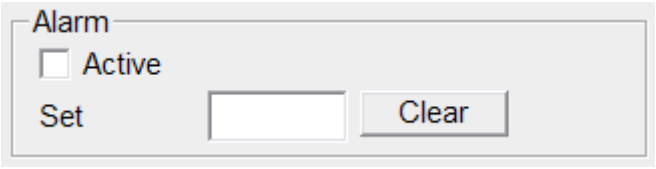


Alarm

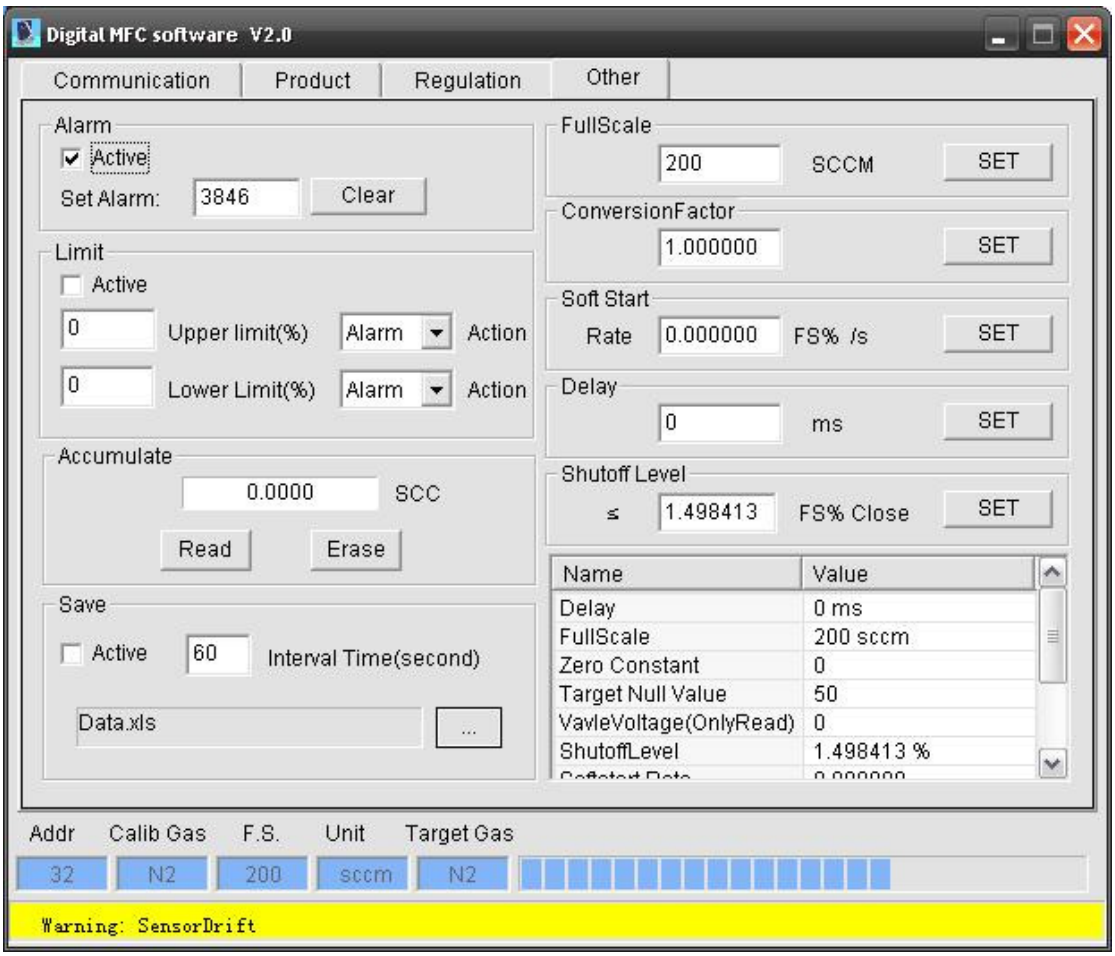
By left-clicking on the value of the "Set Alarm" input area, the user can select which alarms conditions will be monitored.



To activate the alarm function, select the "active" check box.

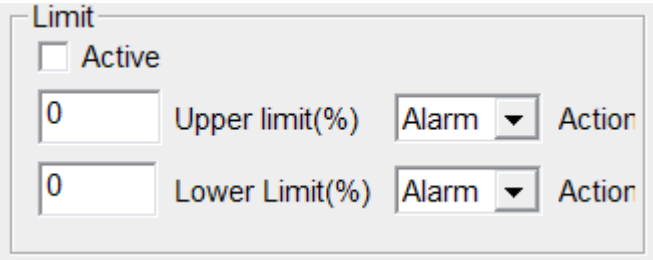


When an active alarm or warning condition is detected, the LED on top of the MFC will change color (red for alarm, yellow for warning) and a message will be displayed at the bottom of the screen,



Press "Clear" to erase an alarm or warning condition.

Limit

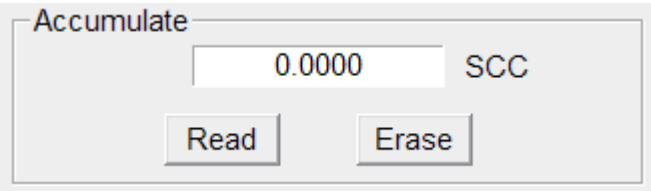


Users can use the program to cause a specific action to occur when flow is outside of a window defined by Upper and Lower Limits. The action to take place can be selected to be to display an alarm condition at the bottom of the screen, or to close, or fully open the solenoid valve.

When the flow rate is out of the limits, the selected function will be active, and the color of status bar will change to yellow.

This function will work only under "Digital" mode and needs to be set each time the software is restarted.

Totalizer

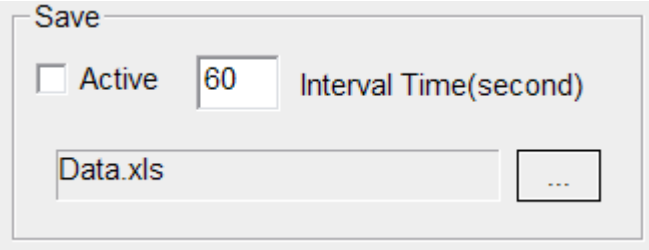


Flow Totalizer displays total accumulated gas flow (Unit: Standard Cubic Centimeter).

Click the "Read" button to display the current accumulated flow.

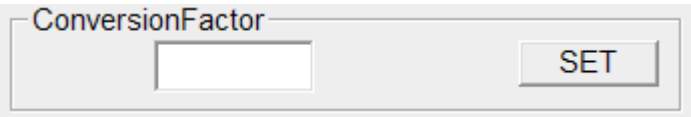
Click the "Erase" button to erase accumulated flow.

Save



Input a sampling interval time, and click the "…" button to chose the file path and file name for data saving. Select the "Active" check box to start saving data, including setpoint, readout, and system time. Unselect the "active" check box to stop saving the data.

Conversion Factor

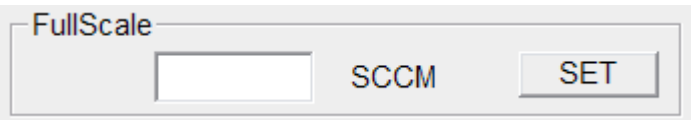


The user can input a Conversion Factor to flow a specific target gas.

When changing conversion factor, Fullscale will be changed automatically to the target gas full scale value.

Full Scale

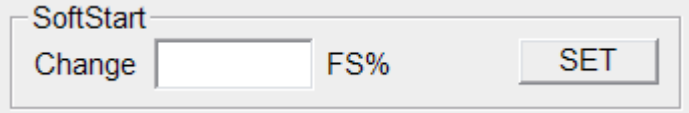
The Full Scale flow of the MFC can be programmed.



The full scale range must be within 30% to 110% of the original Full scale

N2 equivalent range of the MFC.

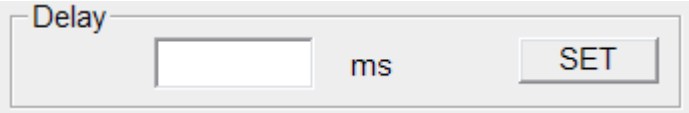
Soft Start



The Soft Start feature allows the user to cause the CS200 MFC to ramp up or down the setpoint at a specified rate to provide a soft response characteristic. The rate of setpoint change is entered as %F.S. change per second.

For example, given a setpoint change from 0 to 100%, if the Soft Start value is 20, gas flow will change at a rate of by 20% of full scale per second. Full scale flow will be reached after 5 seconds.

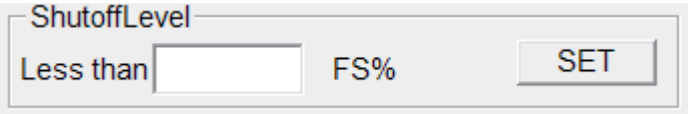
Delay



This function provides the selection of a delay from the time the setpoint is received until and the flow through the CS200 begins. Delay is rounded up to multiples of 100 milliseconds.

NOTE: When the delay is set from 1 to 149msec, the actual delay will be 100ms.

Shutoff level



Shutoff is a feature of CS200 that ensures the valve is closed when the setpoint is less than the set value of shutoff.

The unit of shutoff level is % F.S.

The value of shutoff level can be programmed between 1.5% F.S. and 100% F.S.

NOTE: the default value of shutoff level is 1.5% F.S.

For more information, please contact your nearest Sevenstar agent.

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