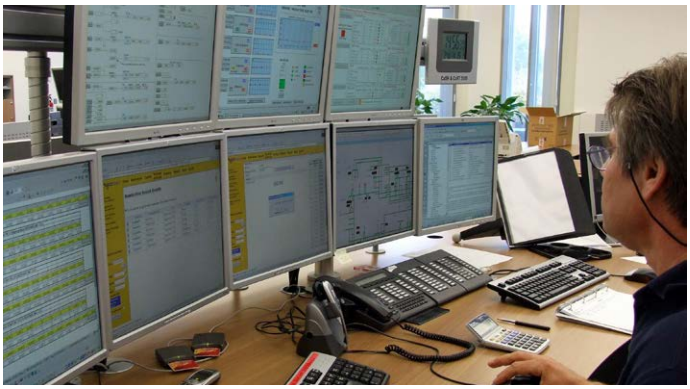
Software Tools

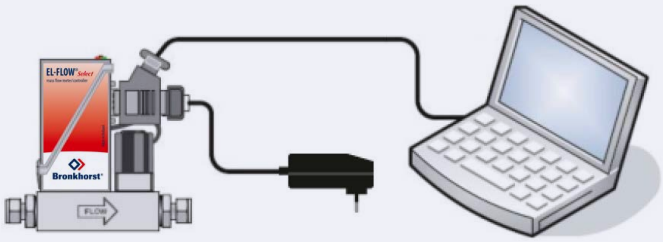
for digital Mass Flow and Pressure Meters / Controllers

Introduction

Bronkhorst High-Tech B.V., the European market leader in thermal Mass Flow Meters/Controllers and Electronic Pressure Controllers, has many years of experience in designing and manufacturing precise and reliable measurement and control devices. With a wide range of instruments and offering innovative solutions for many different applications in a variety of different markets, Bronkhorst® is dedicated to customer satisfaction, quality and sustainability.

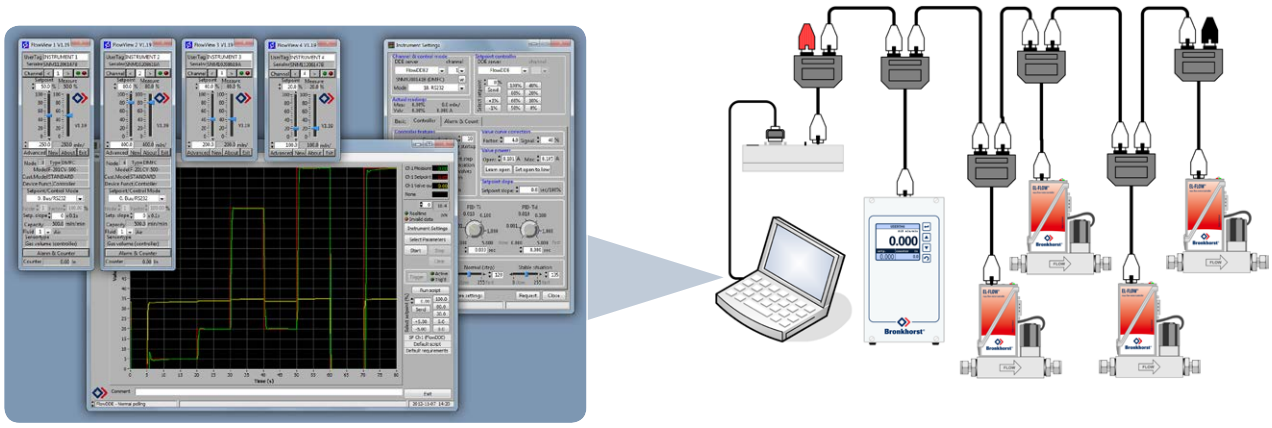


In addition to analog in-and output signals, Bronkhorst® instruments also offer RS232 communication as a standard feature.



MFC directly connected to a PC via RS232

Furthermore, an integrated interface board provides DeviceNet™, PROFIBUS DP, Modbus-RTU/ASCII, EtherCAT®, PROFINET or FLOW-BUS protocols. The latter is a fieldbus based RS485, specifically designed by Bronkhorst® for their mass flow metering and control solutions, and with which the company has many years of experience with digital communication. FLOW-BUS systems are easy to set-up, making use of a number of standard accessories, as shown in the illustration on this page. Complete FLOW-BUS systems are factory configured and tested and will be directly operational on the bus.



Example of a system using an RS232/FLOW-BUS interface for PC connection

Bronkhorst®

Bronkhorst FlowWare, free software tools

For the convenience of their customers, Bronkhorst® developed various software tools, to support the operation of their digital mass flow and pressure meters and controllers. These software tools are suitable for operation by personal computer and available free of charge for users of digital instruments manufactured by Bronkhorst® including M+W Instruments GmbH and Mass Flow Online BV. These free software tools can be downloaded from our website: downloads.bronkhorst.com

FlowDDE	Interface between digital instruments and Windows software
FlowPlot	Software tool for monitoring and optimizing digital instruments parameters
FlowView	Software tool to operate Bronkhorst digital instruments
FlowFix	Software tool to configure the fieldbus connection of digital instruments
FlowTune®	User-friendly Multi-Gas / Multi-Range software
FLUIDAT®	Online Mass Flow and physical properties calculation tool

Service Engineer, optimizing (PID) controller settings

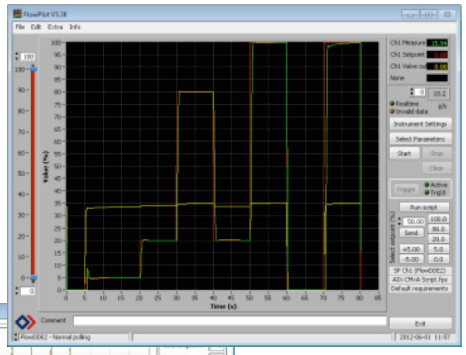
Bronkhorst FlowWare can be downloaded at **downloads.bronkhorst.com**

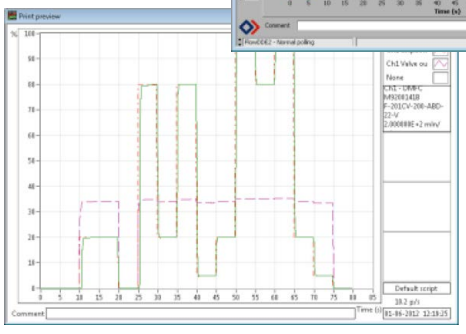
Tutorials about Bronkhorst FlowWare can be found at our Youtube channel **www.youtube.com/BronkhorstHighTech**

FlowPlot

Software tool for monitoring and optimizing digital instruments parameters

FlowPlot showing setpoint steps, measured flow and valve current.



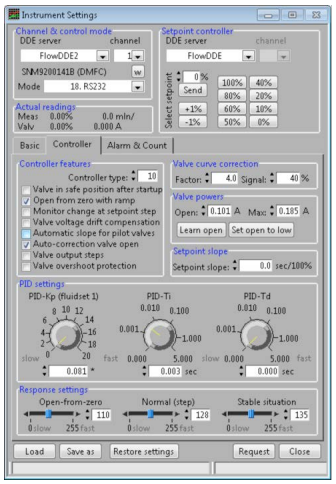


Plots can be printed or exported, e.g. as pdf-file

FlowPlot is a DDE client application for monitoring and service purposes on Bronkhorst® digital instruments and readout units. It gives good insight into the dynamic behaviour of meters and controllers (and thus your process) and allows adjustment of controller, alarm and counter settings. Furthermore FlowPlot has proven to be very useful when taking new instruments into use, because it can show various measured parameters simultaneously, e.g. flow, pressure, temperature, density, depending on the instruments used in your process. FlowPlot is a DDE client and relies on FlowDDE* for communication to the instrument.

Typical functions

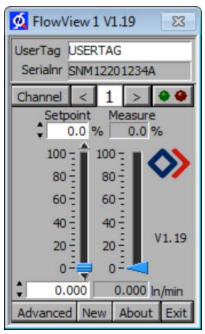
- select parameters and plot color
- alarms and (batch) counter setting
- re-ranging instruments ((mini) CORI-FLOW)
- optimizing filter settings
- optimizing (PID) controller settings
- printing a hardcopy of graphes
- data logging to comma separated files
- running (test) scripts



Example of control panel for instrument settings

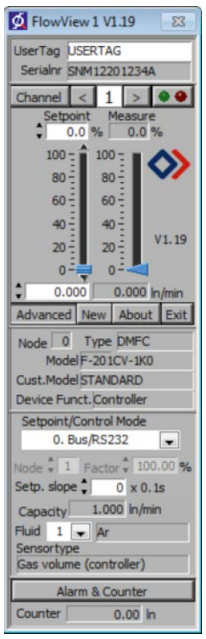
FlowView

Software tool to operate Bronkhorst® digital instruments



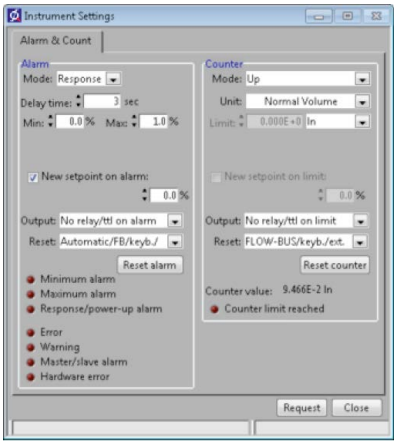
FlowView user interface, normal window: only measure, setpoint, usertag, serial number and channel selection.

Advanced FlowView window with additional functions: instrument identification, setpoint/control mode, setpoint slope, fluid selection, button for alarm and counter settings, counter value and alarm info.



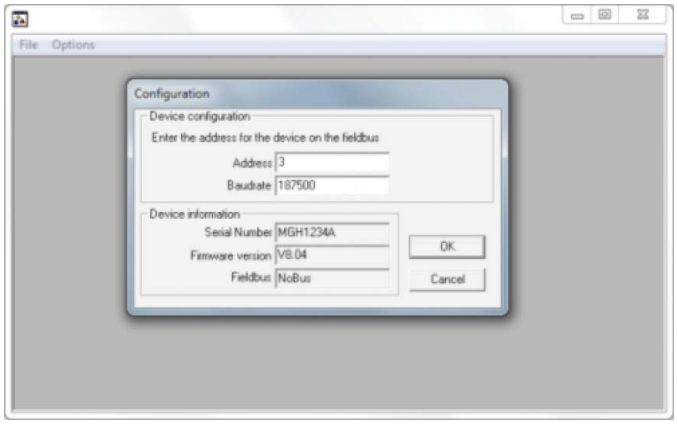
FlowView is an application to easily operate Bronkhorst® digital instruments and readout units (E-8000 series). FlowView is a DDE client and relies on FlowDDE* for communication to the instruments (standard up to 12 screens, configurable up to 99 screens).

FlowView window for alarm and counter settings

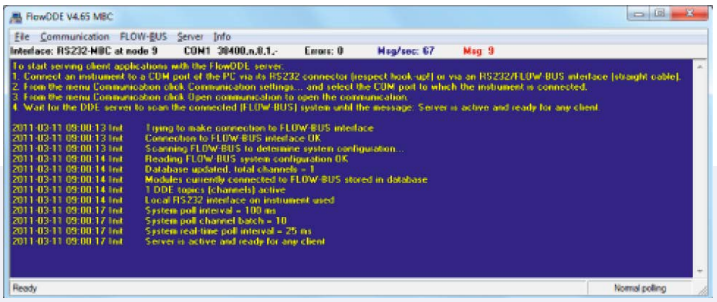


FlowFix

Software tool for fieldbus connection of digital instruments



FlowFix is a configuration application for the fieldbus connection and active fluid. It gives an overview of the available fluids (calibration curves) and allows the user to activate the desired fluid, fieldbus address and baudrate.



FlowDDE

*FlowDDE

FlowDDE is a Dynamic Data Exchange (DDE) server, an easy connection between Windows applications and digital instruments. DDE provides a basic level of interprocess communication between Windows applications. By using DDE commands, sent by software to FlowDDE, data can be sent to or requested from (max. 120) digital instruments connected to FLOW-BUS. FlowDDE handles all communication to the instruments and provides the data to applications. Some examples of applications with DDE communication are Excel (Microsoft), LabVIEW® (National Instruments), InTouch™ (Wonderware®) and self-made applications with e.g. Visual Basic, Visual C, C++. A great advantage of FlowDDE is that it allows multiple programs to run simultaneously.

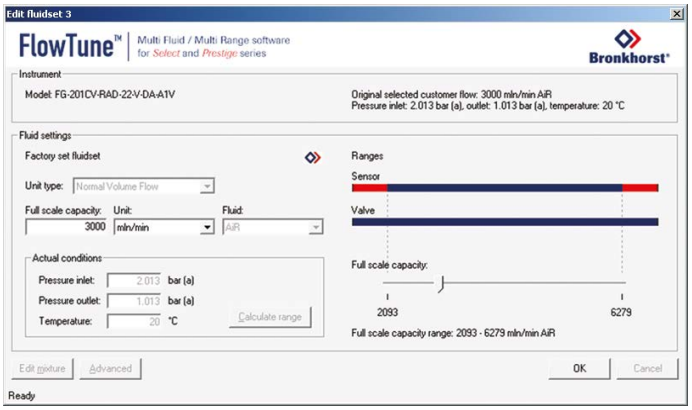
FlowTune®

User-friendly Multi-Gas / Multi-Range software

FlowTune is an offline configuration tool, which can be used in combination with Mass Flow Meters/Controllers with the optional 'Multi Fluid Multi Range' (MFMR) functionality. The following instrument series are supported: EL-FLOW® Select, EL-FLOW® Prestige, EL-FLOW® Metal Sealed, IN-FLOW Select and FLOW-SMS, excluding models F-200CV, FS-200CV, F-202AV/AI and F-203AV/AI.

By means of the FlowTune software the user can:

- store up to 8 different fluidsets (gases) in the instrument
- select one of 11 gases (Air, Ar, CH_4, C_2H_6, CO, H_2, He, N_2, N_2O, O_2, CO_2)
- set the full scale (FS) flow
- adjust the controller speed per fluidset



The MFMR functionality is valid for operating conditions from 0.8 to 10 bar abs and 0 to 70°C. FlowTune® will be provided on CD-ROM with MFMR-instruments.

FLUIDAT® on the Net

Online mass flow and physical calculation tool

CoriCalc, online Coriolis Mass Flow Meter / Controller sizing and calculation routines (flow, differential pressure and orifice calculations)

FLUIDAT® is a collection of routines to calculate physical properties of gases and liquids, which are available by the FLUIDAT® on the Net website www.fluidat.com

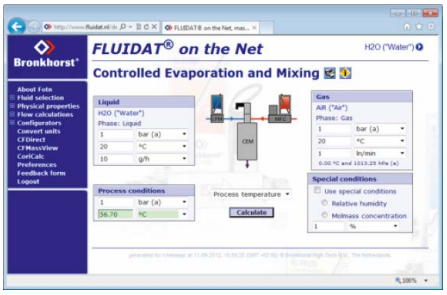
FLUIDAT® makes use of intrinsic fluid data like molecular mass, critical properties, boiling point and dipole momentum. Fluid properties can be calculated at a certain temperature and pressure. Also, properties of mixes consisting of up to 15 components can be derived. Over 800 fluids are available in the FLUIDAT® software, being mainly hydrocarbons complemented with most well known inorganic fluids (gases) such as air, argon and helium.

Searching for a fluid is very flexible. The search can be performed by chemical formula or by the name of the fluid. Also, a filter can be set to narrow the search.

Typical functions

- display intrinsic properties of fluids
- calculation of fluid properties
- vapour pressure line generation
- gas and liquid conversion factors
- orifice calculation for mass flow controllers
- pressure drop across flow meters and filters
- calculation of operating conditions for CEM or VDM vapour generation system
- create / edit / save mixtures
- Coriolis mass flow meter / controller sizing

Evaporation system calculation



Bronkhorst®

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