

# DATASHEET MV-401

## MASS-VIEW® MV-401

Mass Flow Regulator for gases with pressure compensation and integrated display

MASSFLOW-ONLINE PRODUCT



### Gas Mass Flow Regulators with pressure compensation and integrated display

MASS-VIEW® model MV-401 Mass Flow Regulators (MFRs) are suited for precise measurement and control of flow ranges between 20...50 ml<sub>n</sub>/min and 20...200 ml<sub>n</sub>/min at operating pressures up to 10 bar(g). The MFR has an integrated graphical OLED display, clearly visible at wide angles, which allows reading of actual flow (value and a bar graph), total flow and type of gas. A high quality needle valve with integrated pressure compensation offers smooth and fine adjustment of the gas flow, even at varying upstream pressures.

The display features easy set up via a user-friendly menu, using a 4-way navigation push button. The pre-installed gases eliminate the need to recalibrate for different gases and therefore reduce the cost of ownership. Additional features & functions include a variety of alarm and counter functions, an analog output signal, digital interfaces and two relay contacts.

The MASS-VIEW® series provides modern, novel and economical alternative to variable area meters (VA meters), also known as purge meters. Unlike conventional VA meters these new flow meters measure mass flow instead of volume flow.

### Technical specifications

#### Measurement / control system

|  |  |
|--|--|
| Flow range (intermediate ranges available)               | min. 20...50 ml <sub>n</sub> /min<br>max. 20...200 ml <sub>n</sub> /min<br>(based on N <sub>2</sub> )    |
| Accuracy (incl. linearity) (based on actual calibration) | ± 2% Rd for flow > 50% of max. capacity;<br>± (1% Rd + 0,5% FS) on lower flows                           |
| Repeatability  | < 0,2 % FS typical   |
| Turndown ratio   | up to 1 : 10   |
| Operating pressure                                       | 0 ... 10 bar(g) / 0 ... 150 psi(g)   |
| Pressure coefficient                                     | ± 0,2% Rd/bar typical at Air   |
| Media  | Non-hazardous gases; Helium excepted   |
| Pre-installed gases                                      | Air, N <sub>2</sub> , O <sub>2</sub> , CO  |
| Standard calibration gas                                 | Air, other gases are converted using our Fluidat® conversion model which will introduce extra inaccuracy |
| Response time (sensor)                                   | 2 sec.   |
| Operating temperature                                    | 0 ... 50 (32 ... 122°F)  |
| Temperature coefficient                                  | Zero: <0,1% FS/°C, Span: <0,2% Rd/°C   |
| Leak integrity, outboard                                 | tested < 2 x 10 <sup>-9</sup> mbar l/s   |
| Attitude sensitivity                                     | < 0,1 % FS   |

## Mechanical parts

|                         |   |
|-------------------------|---|
| Material (wetted parts) | Meter: Aluminium;<br>Needle valve: SS316, Brass                                     |
| Test pressure           | 21 bar(a) / 300 psi(a)  |
| Min. ΔP                 | 1 bar(d)  |
| Max. ΔP                 | 7 bar (d)   |
| Process connections     | G 1/4" BSPP female thread<br>(compression fittings optional)                        |
| Seals                   | Viton®, PTFE, Fluorosint®, Buna N;<br>Controller membrane: fiber-reinforced nitrile |
| Weight                  | 1,4 kg  |
| Ingress protection      | IP40  |
| Control accuracy        | < 0,5-1% Rd/bar   |

## Electrical properties

|                              |   |
|------------------------------|---|
| Power supply                 | +15 ... 24 Vdc (+/- 10%)  |
| Max. power consumption       | approx 135 mA   |
| Analog output                | 0 ... 5 Vdc   |
| Digital communication        | RS232 / RS485 (Modbus RTU/ASCII)                                    |
| Min. and max. relay contacts | switching current 0,5 A, 24 Vdc,<br>one side grounded (0 Vdc power) |
| Electrical connection        | 8-pin RJ-45 modular jack  |

## Electrical connection

## Control valve options

## External actuator options to be connected to the controller

## Ex-proof specifications

## Approvals / certificates

Technical specifications subject to change without notice.

For dimensional drawings and hook-up diagrams please visit the [product page](#) on our [website](#)

## Related products



**MASS-VIEW® MV-101**

Min. flow 10...50  
mln/min  
Max. flow 10...200  
mln/min  
Pressure rating 10 bar  
Bright, graphical OLED  
display  
10 pre-installed gases



**MASS-VIEW® MV-301**

Min. flow 10...50  
mln/min  
Max. flow 10...200  
mln/min  
Pressure rating 10 bar  
Bright, graphical OLED  
display  
High quality needle  
valve



**MASS-VIEW® MV-402**

Min. flow 20...200  
mln/min  
Max. flow 20...2000  
mln/min  
Pressure rating 10 bar  
Bright, graphical OLED  
display  
Pressure compensated  
valve