Flow Measurement System
CoM4.FLOW

Version: 04.07.2025

The CoM4.FLOW flow system enables highly precise and dynamic measurement of mass and volume flows in air and gases.

- Very fast and precise flow calculation
- Measurement with different primary elements possible
- Substance data calculation for air and pure gases
- Controller as measuring and control system

Technical Description

The measuring system conducts independent test procedures and can transmit the measurement results digitally and, upon request, also analogously.
The CoM4.SYS controller manages the entire testing process as well as the recording and evaluation of measurement data. Thanks to its modularity — in both mechanical construction and sensor technology, as well as in the versatile configurable software — the measuring system can be optimally adapted to different testing tasks. Configurable test programs enable quick and easy switching between different settings to meet various measurement requirements.

Functional Scope

- Continuous measurement
- Higher-level control (PLC operation)
- Automatic range switching
- Averaging and statistical data for all measured values
- Gate time measurement for pulse signals
- Zeroing of differential and relative pressures
- Leak test / self-test

Additionally, all sensor signals supplied to the measuring system, such as differential pressure, absolute pressure, temperature, etc., can be linearized and displayed in various physical units. Precise physical models provide information on quantities such as density, viscosity, Reynolds number, and many others.

Furthermore, it is possible to couple various flow elements as separate components to the measuring system.
For pressure-dependent primary elements, such as laminar flow elements, gas meters, critical nozzles, Pitot tubes, orifices, Venturi tubes, nozzles, and thermal mass flow meters, highly precise, standard-compliant calculation and correction procedures are available for the measuring system.

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Specifications

Measurement Range	1 mL/min to 64 m³/min
Accuracy (Air)	Standard: ≤ 0.3% o.r. HIGH END: ≤ 0.2 % o.r.
Measurement Uncertainty (k=2) (exact value range and media dependent)	Standard: ≤ ±1% o.r HIGH END: ≤ ±0.6 % o.r.
Sensor Types and Measurement Ranges	Diff. Pressure: 0..20 / 60mbar Rel. Pressure: 0..0.1 / 1 / 2.5 / 4 / 6 bar Absolute Pressure: 0..0.1 / 1 / 2.5 / 4 / 6 bar
Operating Conditions	Input Pressure: 0 .. 7 bar abs Input Temperature.: 0 .. +45 °C Humidity: 0 .. 100 %, non-condensing
Environmental Conditions	Pressure: Atmospheric Temperature: -10 .. +50 °C Humidity: 0 .. 100 %, non-condensing
Media Compatibility	Clean, dry, non-condensing, non-corrosive gases and air. The measuring medium must meet the requirements of ISO 8573-1. In addition to a 5 µ filter, an oil/water separator in the compressed air supply is absolutely necessary.
Overload Limit	Double the measuring range end value of the pressure sensors, at most the specified pressure rating of the piping
Display	Graphical User Interface on 4“ display
Enclosure Dimensions (WxHxD)	3 U: 450 x 150 x 316 mm 4 U: 450 x 190 x 316 mm 6 U: 450 x 280 x 316 mm
Protection Class	IP 20 to IP 54, higher on request
Process Connections	Standard DIN threads and flanges, others on request
Electrical Connections	IEC connector, round connector (type Lumberg)
Interfaces	Ethernet, USB 2.0 (Type A), RS-232, 9-Pol. D-SUB, 8 opt.el DI/DO

Specifications

Power Supply	90..260 VAC (power supply), 50/60 Hz, max. 80 W
Approvals	The measuring device complies with the European standard EN 61010-1 (Safety requirements for electrical equipment for measurement, control, and laboratory use) and the provisions of the "Machinery Directive - 89/392"

Special Features

Mounting Options

Control Device: the CoM4.SYS controller is ready for connection in a stable 19" rack housing with 3U, 4U or 6U. Sensors and flow measurement sections are also available as separate components.

Measurement Sections:

Up to 2 measurement sections can be connected to the measuring/control device simultaneously and operated or evaluated continuously or program-controlled. The calibration data for determining sensor values and flow rates are stored in the measuring/control device.

Measuring Media

Usable media: The substance database supports the use of air and more than 12 gases.

Operation

Touch display with apps for program and parameter selection, optional browser GUI with COMM window and y/t graph. Available functions include:

- Temporal representation of measurements
- Measurement results
- System diagnosis/system information
- Settings with parameter settings
- Data logging

Order Data

The system can be customized in special cases to meet specific requirements. Please provide us with the following information for design and quotation purposes:

- Flow measurement range(s)
- Type(s) of gas
- Test volume
- Operating conditions (pressure and temperature)
- Environmental conditions
- Enclosure requirements
- Power supply
- Data acquisition requirements
- Other specific requirements