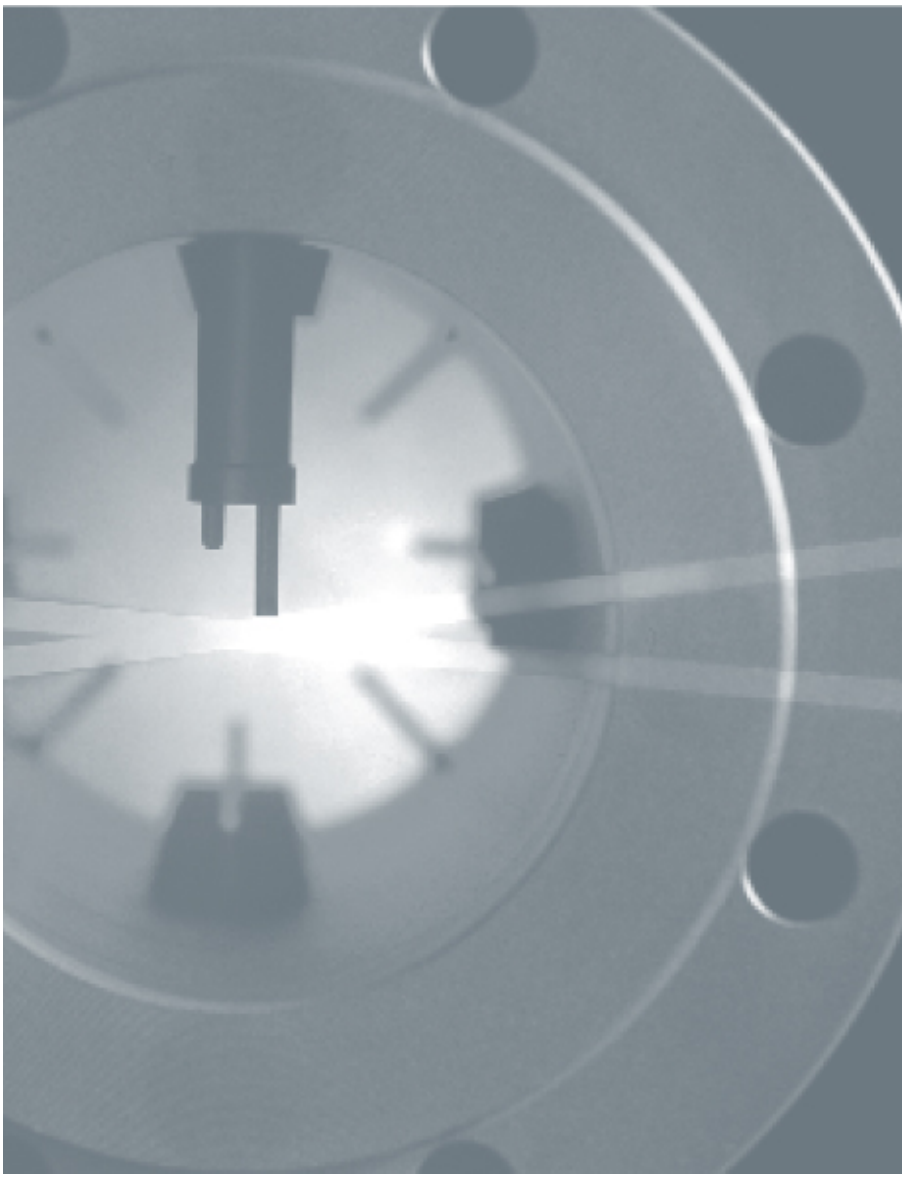
COMBIMASS®

Technical data
COMBIMASS®multi



BINDER
BINDERGROUP

THE SYSTEM

The COMBIMASS®multi module was designed to build up a high performance multipoint system for thermal flow rate measurement of gases. To each electronic module up to four flow transmitters of the COMBIMASS®series can be connected.

A COMBIMASS® multipoint system allows for thermal flow rate measurement of gases even with short inlet and outlet pipe sections, nominal diameters larger than DN 500 or rectangular ducts. In such situations flow profile distortions may occur, which normally lead to errors in flow metering of gases. By installing multiple measuring points over the cross-section of the pipe or duct and averaging the flow signals, COMBIMASS®multi enables accurate and reproducible results even in such demanding applications.

For applications, which are critical from a safety point of view or in such cases where erroneous results may cause considerable cost due to uneconomical process control, COMBIMASS®multi enables redundant monitoring of gas flow rates. Permanent functionality checks of the connected sensors as well as continuous plausibility checking of the flow signals guarantee outstanding reliablility of the system. In case of any inconsistency or if one of the connected sensor fails, immediately an alarm will be released. In such case of malfunction, COMBIMASS®multi automatically considers only those signals of the working flow sensors for signal processing, thus largely avoiding erroneous measuring results.

For indication of the measured flow rates or selected parameters as well as for programming of the multipoint system an optional graphic display with control pad is available. Two field selectable analog outputs and one impulse output are used for transmission of the flow or temperature signals. COMBIMASS®multi allows indication and checking of the actual reading of any of the connected flow transmitters in the field. For monitoring of flow rate or temperature limits up to three switch points can be field set by programming the relay outputs of the COMBIMASS®multi module. Via those relay outputs an alarm may be released or any external device, such as a valve or pump, may be controlled.

COMBIMASS®multi features processing of external control signals in order to run complex applications. In order to enable monitoring of those external control signals an analog input as well as a relay input are available.

Optional COMBIMASS®multi can be upgraded with two independent data loggers. These allow for non-volatile recording of measured flow rates over free selectable time periods (eg. data logger 1 for a period of 4 years, data logger 2 for a period of 6 weeks). Comfortable evaluation functions enable easy analysis of stored data. These data can also be transferred via an integrated RS 232 port to any computer for further archiving and evaluation.

SMART FEATURES

- Designed to build up high-performance multipoint measuring systems easily
- May be combined with any flow transmitter of the COMBIMASS® series
- Highly accurate flow rate measurement of gases even with short inlet and outlet pipe sections, large nominal diameters or rectangular ducts
- Redundant gas flow measurement for the purpose of safety precaution or economical control of critical processes
- Suitable for complex applications such as flow metering of mixed gases with variable composition
- Optional data loggers available for non-volatile recording of measured flow rates

APPLICATIONS VERSATILITY

- Flow rate measurement of air or sterilized air in rectangular ducts, eg. in semiconductor industry, for dosing of drugs in pharmaceutical industry, in air conditioning
- Stack monitoring in power and incineration plants, cement industry and other industrial plants
- Combustion air and preheater air flow monitoring
- Flue and waste gas recirculation monitoring
- Gas flow monitoring through scrubbers and precipitators
- Redundant flow monitoring of process gases in critical applications
- Flow rate measurement of gas mixtures with variable composition in pipes with large nominal diameter or short inlet and outlet sections (eg. combustion gases, flare gases, process gases, …)

SPECIFICATIONS

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Measuring principle	Multipoint measurement or redundant monitoring of gas flow rates based on thermal dispersion technology
Number of measuring points	The COMBIMASS®multi electronic module allows for connection of 2, 3 or 4 sensors / field transmitters of the COMBIMASS® series
Applications	Flow rate measurement of air, technical gases, inert gases, supply gases, combustion gases, flue and waste gases, process gases, explosive and flammable gases, dirty and moist gases, gases at extreme process temperatures and pressures, gases and gas mixtures of known and variable composition, depending on configuration of connected sensors / field transmitters ▪ Multpoint measurement of flow rates in case of flow profile distortions, especially in case of short inlet and outlet pipe sections, large nominal diameters or rectancular ducts ▪ Redundant monitoring of gas flow rates, especially for the purpose of safety precaution or economical control of critical processes
Measured parameter	▪ Gas mass flow [kg/h] ▪ Normal volumetric flow [Nm^3/h] ▪ Normal flow velocity [Nm/s] ▪ Totalized flow [kg] / [Nm^3] ▪ Temperature [°C]
Signal processing	Microprocessor based, fully digital signal processing

SPECIFICATIONS

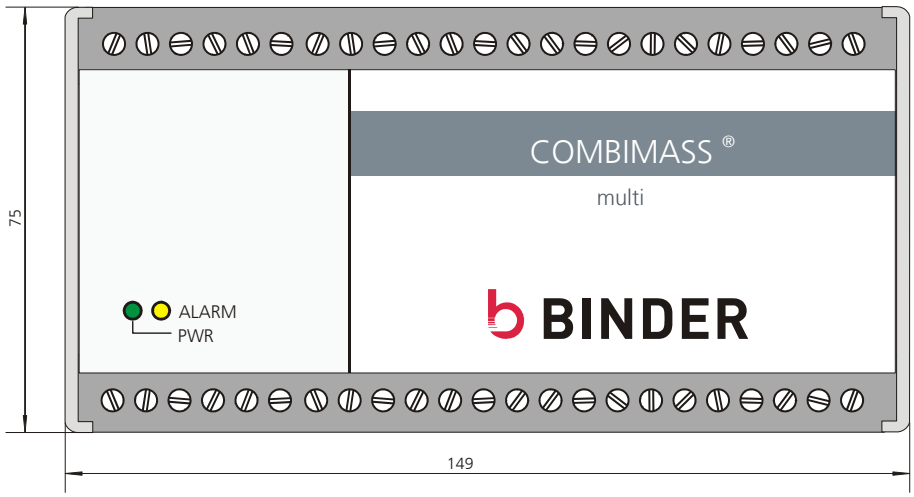
Calibration	Up to three different calibration groups with advanced temperature compensation for different gases, gas mixtures or process conditions
Housing	▪ DIN rail housing for switch cabinet installation ▪ Field housing (optional)
Protection class	IP 22 (DIN rail housing) IP 54 (field housing)
Ambient conditions	Ambient temperature –40° C to 70° C, Relative humidity 80%
Power supply	18 – 36 VDC Power supply via standard supply units possible
Power consumption	Max. 7 Watt for standard configurations Max. 9 Watt with process interface module for intrinsically safe operation
Turndown ratio	10 : 1 to 1000 : 1
Graphic display with control pad (optional)	▪ Large surface graphic display (wall or switch cabinet mounting) ▪ Indication of flow rate, totalized flow and medium temperature ▪ Integrated totalizer ▪ Touch pad for easy programming of the flow metering system ▪ Easy-to-use menu for system set-up Additional functions, if upgraded to a flow analysis computer (data loggers): ▪ Operation and programming of integrated flow computing analyzer via touch pad ▪ Easy calculation and indication of totalized flow, maximum, minimum or average flow rate for any selectable time period ▪ Recall and display of stored data
Data logger (optional)	▪ Upgrade to a high-performance flow analysis computer ▪ Two independant, integrated data loggers ▪ Non-volatile storage of up to 400.000 measured flow rates on each data logger ▪ Selectable storage intervals and periods ▪ Extensive data evaluation and analysis functionality ▪ Transfer of stored data via integrated RS 232 port for further archiving and evalutation Preselected storage intervals: Data logger 1: 1 measured value / 5 min Data storage over a period of appr. 4 years Data logger 2: 1 measured value / 10 sec Data storage over a period of appr. 6 weeks

TECHNISCHE DATEN

Signal output (isolated)	2 x analog output:	4-20 mA, active load < 400 Ohm 10 bit resolution
	1 x impulse output:	field selectable max. 30 impulse/s
	3 x relay output:	field selectable, for monitoring of high, low or windowed flow rates or temperatures and providing alarm and/or control signals
Signal input (isolated)	1 x analog input:	4-20 mA, passive 10 bit resolution
	1 x relay input:	for remote selection of different calibration groups
Digital port	RS 232C serial port	
Possible combinations	The COMBIMASS®master module may be combined with following flow transmitters of the COMBIMASS® series: ▪ COMBIMASS®basic (combination not possible with low-cost version) ▪ COMBIMASS®eco ▪ COMBIMASS®compact	

DIMENSIONS

Scale 1:1



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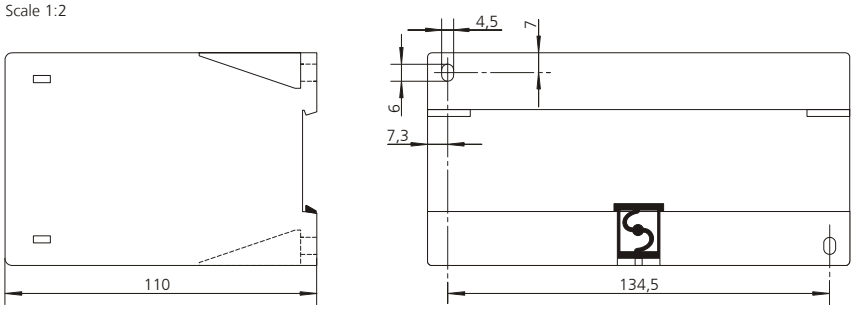

IMPRESSUM

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