

MFM 4510/MFM 4530



More than just a Mass Flow Meter

For Heavy Duty and Ex Applications

Monitor the mass flow rate, standard flow rate, consumption, pressure and temperature with the integrated pressure sensor in real time.

Benefits

- Perform accurate thermal mass flow measurements and directly measure mass flow, standard flow, consumption, pressure and temperature.
- Rugged metal housing designed for harsh outdoor environments.
- Easy access to measurement data via the integrated data logger
- All components in contact with the medium are made of stainless steel or nickel-plated metal.
- Mechanical design with no moving parts for clog-free operation.

① Robust Materials

- The IP67 housing allows applications in harsh industrial environment as well as outdoor applications.
- All parts which come into contact with the measurement medium are made of stainless steel or nickel-plated metal. This makes the sensors robust and guarantees a reliable measurement.

② Color Display

- The display shows all relevant measurement values on site. This allows the user to verify readings easy and quickly during installation and use.
- The pressure-tight encapsulation protects the display from external influences and ensures that it is always clearly visible.
- 3 optical buttons allow configuration at sites where mobile phones are not allowed.

③ Flexible and easy Installation

- The MFM 4510 and MFM 4530 can be used in a wide range of pipe sizes. Insertion type sensor for bigger pipe diameters and the in-line type for smaller pipes.

④ Outputs and Data Logger

- Modbus/RTU & 2 x 4 ... 20 mA + Pulse/Alarm output
- Modbus/TCP over Ethernet/APL & 2 x 4 ... 20 mA + Pulse/Alarm output
- Integrated data logger to record and store measurement data



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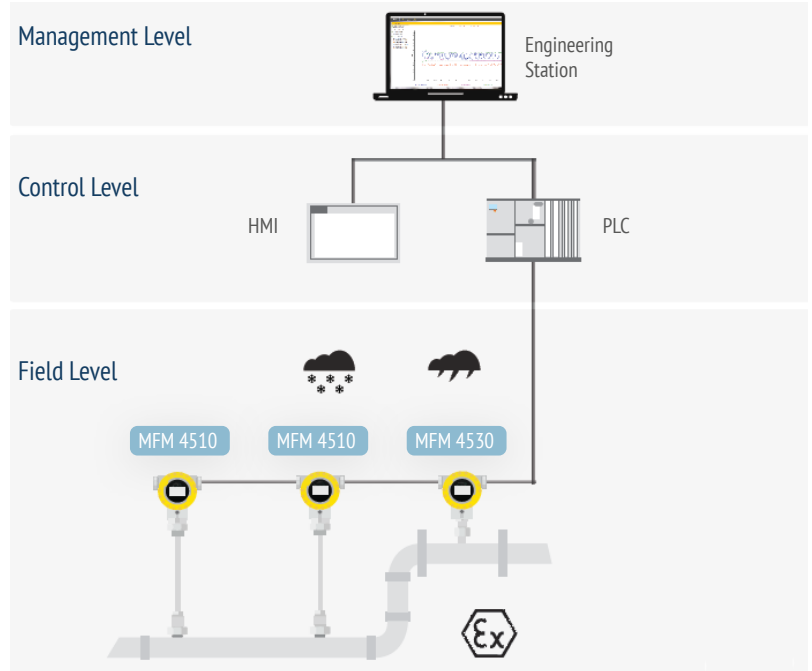


Industrial Communication

Enhance your connectivity with the advanced functionality of industrial communication via Modbus/RTU, while harnessing the power of Modbus/TCP over Ethernet/APL networks for seamless data exchange across your plant.

Applications

- Flow measurement in hazardous and all weather applications
- Explosive and harsh environments
- Pharmaceutical and food industry
- Various Gas Measurement such as oxygen, argon, carbon dioxide, natural gas, hydrogen, methane, etc..



Volumetric Flow Ranges

MFM 4510

Tube		Volumetric Flow Ranges		
DN	Inch	Low (m ³ /h)	Standard (m ³ /h)	Max (m ³ /h)
DN25	1"	0.2 ... 48	0.8 ... 191	1.5 ... 382
DN32	1¼"	0.3 ... 86	1.4 ... 345	2.8 ... 689
DN40	1½"	0.5 ... 119	1.9 ... 475	3.8 ... 949
DN50	2"	0.8 ... 194	3.1 ... 777	6.2 ... 1,554
DN65	2½"	1.3 ... 332	5.3 ... 1,329	10.6 ... 2,658
DN80	3"	1.8 ... 461	7.4 ... 1,843	14.7 ... 3,686
DN100	4"	2.8 ... 707	11.3 ... 2,826	23 ... 5,653
DN125	5"	4.4 ... 1,107	17.7 ... 4,427	35 ... 8,853
DN150	6"	6.4 ... 1,596	26 ... 6,382	51 ... 12,764
DN200	8"	11.4 ... 2,843	45 ... 11,373	91 ... 22,746
DN250	10"	18 ... 4,448	71 ... 17,791	142 ... 35,583
DN300	12"	26 ... 6,413	103 ... 25,650	205 ... 51,300

MFM 4530

Tube		Volumetric Flow Ranges		
DN	Inch	Low (m ³ /h)	Standard (m ³ /h)	Max (m ³ /h)
DN25	1"	0.2 ... 48	0.8 ... 191	1.5 ... 382
DN32	1¼"	0.3 ... 86	1.4 ... 345	2.8 ... 689
DN40	1½"	0.5 ... 119	1.9 ... 475	3.8 ... 949
DN50	2"	0.8 ... 194	3.1 ... 777	6.2 ... 1,554
DN65	2½"	1.3 ... 332	5.3 ... 1,329	N/A
DN80	3"	1.8 ... 461	7.4 ... 1,843	N/A

Stated measuring ranges under following conditions:

- Standard flow in air
- Reference pressure: 1000 hPa, reference temperature: +20 °C
- At other conditions and other gases the flow range is different.
- Flow measurement in pipes larger than DN300 are also supported, by using the 100 mm insertion depth setting.

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Technical Data

General Data

Configuration	
Others	3 touch button at display
Display	
Integrated	LCD
Material	
Process Connection	Stainless steel 1.4404 (SUS 316L)
Housing	Al alloy
Sensor	Stainless steel 1.4404 (SUS316L), 4J50 nickel plated, glass
Metal parts	Stainless steel 1.4404 (SUS 316L)
Miscellaneous	
Electrical connection	Screw terminals
Protection class	IP67, Ex option: IP65
Approvals	CE, RoHS, FCC, Ex-Options
Process connection	MFM 4510: G3/4" (ISO 228/1) MFM 4530: Measuring section with R-thread or Flange
Weight	MFM 4510 300mm: 2.15kg MFM 4510 200mm: 2.08kg MFM 4530 without section: 1.86kg
Operating conditions	
Medium	Air, N ₂ , O ₂ , CO ₂ and other non corrosive gases
Medium temperature	MFM 4510: -40 ... +100 °C MFM 4530: -40 ... +100 °C
Medium humidity	< 90 %, no condensation
Operating pressure	0 ... 1.6 MPa applicable for Ex-Option 0 ... 5.0 MPa applicable for Non-Ex-Option* *For pressure above 1.5 MPa use the installation device A530 1119 or A530 1120 to install MFM 4510.
Ambient temperature	-40 ... +65 °C
Storage temperature	-30 ... +70 °C
Transport temperature	-30 ... 70 °C
Pipe sizes	MFM 4510: >= DN25 MFM 4530: DN25 ... DN80

Measurement

Flow	
Accuracy	±(1.5 % of reading + 0.3 % full scale)
Selectable units	m ³ /h, m ³ /min, l/min, l/s, cfm, kg/h, kg/min, kg/s
Repeatability	0.25 % o.RDG
Sensor	Thermal mass flow sensor
Sampling rate	3 samples / sec
Turn-down ratio	200:1
Response time (t ₉₀)	0.5 Seconds
Consumption	
Selectable units	m ³ , ft ³ , l, kg
Reference conditions	
Selectable conditions	20 °C 1000 mbar (ISO1217), 0 °C 1013 mbar (DIN1343) freely adjustable

Signal / Interface & Supply

Analog output	
Signal	2 x 4 ... 20 mA (4-wire), isolated
Scaling	0 ... max flow, freely adjustable
Load	Max. 400 Ohm
Update rate	Value updated ever 1 sec
Pulse/Alarm output	
Signal	Switch output, normally open, max. 30 VDC, 200 mA
Scaling	1 pulse per consumption unit (selectable)
Alarm	Channel and threshold freely settable
Fieldbus	
Protocol	Modbus/RTU, Modbus/TCP
Supply	
Voltage supply	16 ... 30 VDC
Current consumption	200 mA

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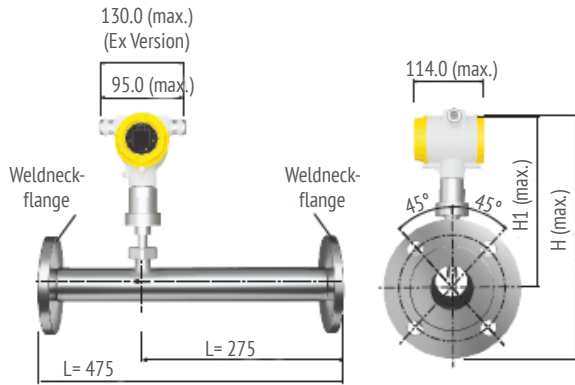
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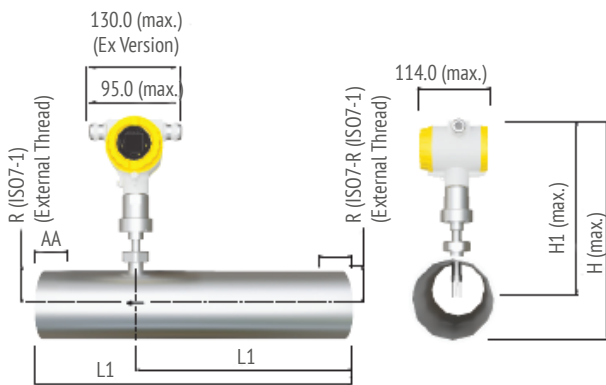


MFM 4530 Dimensions (Flange Type)



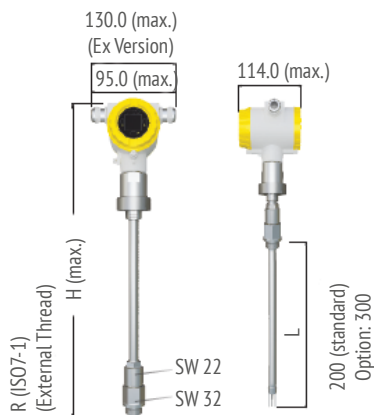
Pipe Inch / (DN)	L (mm)	L1 (mm)	H (mm)	H1 (mm)
1" (DN25)	475	275	339.5	282
1¼" (DN32)	475	275	352	282
1½" (DN40)	475	275	357	282
2" (DN50)	475	275	364.5	282
2½" (DN65)	475	275	374.5	282
3" (DN80)	475	275	382	282

MFM 4530 Dimensions (Thread Type)



Pipe Inch / (DN)	L (mm)	L1 (mm)	H (mm)	H1 (mm)	R
1" (DN25)	475	275	299	282	R 1"
1¼" (DN32)	475	275	303	282	R 1¼"
1½" (DN40)	475	275	306	282	R 1½"
2" (DN50)	475	275	312	282	R 2"
2½" (DN65)	475	275	320	282	R 2½"
3" (DN80)	475	275	326.5	282	R 3"

MFM 4510 Dimensions



Shaft option (mm)	H (mm)	Diameter (mm)	SW
200	471	15	G ¾"
300	571	15	G ¾"

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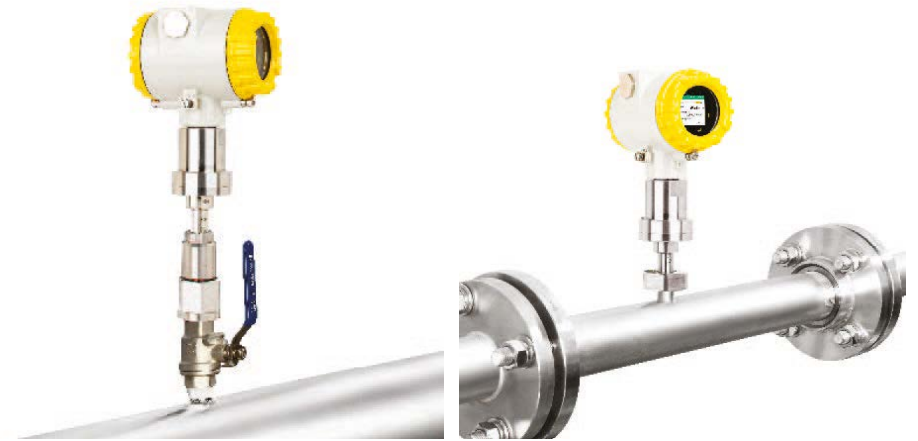


Integrated Data Logger

Experience operational excellence with our advanced thermal mass flowmeter integrated with a data logger. Seamlessly monitor real-time flow rates, temperatures and pressures for informed decision making.

This logger is designed to efficiently collect and store measurement data to provide unparalleled insight into your processes and compressed air system.

Installation



MFM 4510

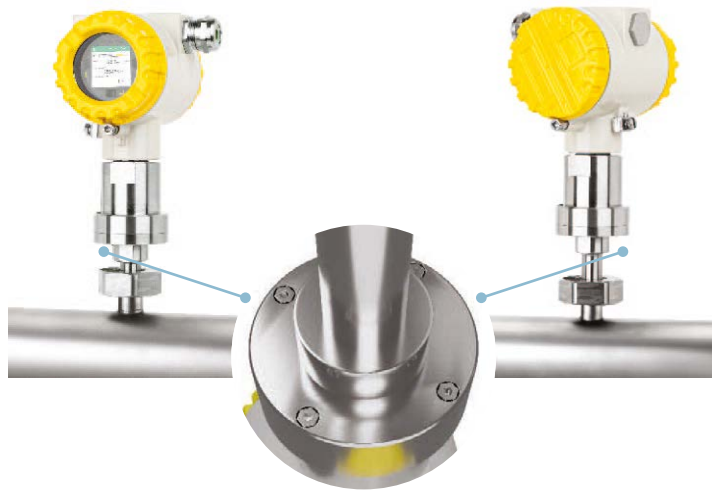
Insertion type sensor for installations under pressure through ball valve

MFM 4530

In-line type with measuring section.
Process connection through flanges or R-thread

Rotation

Achieve effortless customization during installation by effortlessly rotating the sensor head 180°. This simple adjustment ensures optimum visibility of the display exactly where it is needed, requiring only the removal of 4 screws from the main body.



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