

Air Flowmeter | MCF Series



The MCF series of flowmeters for compressed air/nitrogen employs our proprietary μ F (Micro Flow) thermal flow rate sensor as the sensing element.

Despite their low price, these meters are capable of measuring mass flow at 3% FS in a measurement range of 50:1, and are equipped with a reverse flow detection function, a normal/reverse flow detection function, and more.

Furthermore, they can measure up to twice the flow rate range with an accuracy of 10% rdg.



Specifications

DC power type

Model No.	MCF0080	MCF0150	MCF0151	MCF0250	MCF0400	MCF0500
Gas types	Air, nitrogen. (Gas must be clean and dry, without corrosive components such as chlorine, sulfur and acid, and without dust or oil mist.)					
Flow rate range	0 to 200 L/min (normal)*1	0 to 500 L/min (normal)*1	0 to 1000 L/min (normal)*1	0 to 3000 L/min (normal)*1	0 to 6000 L/min (normal)*1	0 to 12000 L/min (normal)*1
Reverse flow range	-60 L/min (normal)*2	-150 L/min (normal)*2	-300 L/min (normal)*2	-900 L/min (normal)*2	-1800 L/min (normal)*2	-3600 L/min (normal)*2
Extended range	400 L/min (normal)*3	1000 L/min (normal)*3	2000 L/min (normal)*3	6000 L/min (normal)*3	12000 L/min (normal)*3	24000 L/min (normal)*3
Accuracy guaranteed flow rate range	4 to 200 L/min (normal)	10 to 500 L/min (normal)	20 to 1000 L/min (normal)	60 to 3000 L/min (normal)	120 to 6000 L/min (normal)	240 to 12000 L/min (normal)
Measurement accuracy	±3% FS ±1 digit					
Smallest detectable flow rate	2 L/min (normal)	5 L/min (normal)	10 L/min (normal)	30 L/min (normal)	60 L/min (normal)	120 L/min (normal)
Display resolution	1 L/min (normal)	1 L/min (normal)	2 L/min (normal)	5 L/min (normal)	10 L/min (normal)	10 L/min (normal)
Operating temperature range	-10 to +60 °C (without freezing)					
Storage temperature range	-20 to +70 °C (without freezing)					
Operating humidity range	0 to 90% RH (without condensation)					
Pipe size	8 A (1/4B) Rc	15 A (1/2B) Rc	15 A (1/2B) Rc	25 A (1B) Rc	40 A (1 1/2B) Rc	50 A (2B) Rc
Main unit material	Aluminum alloy, with alumite treatment on the surface					
O-ring material	MCF####A: H-NBR. MCF####F: FKM					
Case material	Modified PPO					
Operating pressure range	-0.07 to 1.0 MPa					
Pressure resistance	1.5 MPa					
Mounting posture	Horizontal (flow: left to right, right to left), vertical (flow: top to bottom, bottom to top)					
Rated power supply voltage	24 Vdc, 120 mA max					
Sampling time / response time	50 ms/1.5 s or less (time until 95% of response to 0 to 100% FS step input)					
Output signal (instantaneous flow rate output)	4 to 20 mA, allowable load resistance of 300 Ω or less*4					
Event output	One open collector output (rating: 30 Vdc, 50 mA), selectable from event functions*4					
Event function	Selectable from integrated pulse output,*5 instantaneous flow rate upper/lower limit switch, integrated flow count up/down switch, and alarm output*4					
Communication function (models with RS-485 only)	3-wire type, 19200 bps max. transmission speed, MODBUS communication protocol					
Electrical connection	PA5 series 4-pin VA connector					
Display specifications	5-digit 7-segment LED/display switchable among instantaneous flow rate, integrated flow total, and cost					
Protective structure	IP65 (JIS C 0920 & IEC 529 standards; waterproof and dustproof for assumed indoor installation)					
Standards compliance	CE marking, EN 61326-2-3: 2006					
Weight	400 g	400 g	400 g	500 g	700 g	1100 g

- *1. "(Normal)" indicates a flow rate converted for conditions of 0 °C and 101.325 kPa.
- *2. The indicated value is displayed as a negative figure without the need to change the settings.
- *3. The indicated value and integrated pulse output are displayed and output without the need to change the settings, but for 4 to 20 mA output, the span setting must be changed.
- *4. Models with RS-485 communication are not equipped with this output function.
- *5. Integrated pulse output specification (selected through the main unit setting)

Model	Pulse weight (L/pulse)	Model	Pulse weight (L/pulse)	Model	Pulse weight (L/pulse)
MCF0080	10, 100, 1000	MCF0151	10, 100, 1000	MCF0400	100, 1000, 10000
MCF0150	10, 100, 1000	MCF0250	10, 100, 1000	MCF0500	100, 1000, 10000

Model No. configuration

Ex.: MCF0080ARND01000

DC power type

Basic model No.	Pipe size	Material	Connection	Gas type	Power supply, output, communication	Option 1	Option 2	Option 3	Appended No.	Description
MCF	0080 0150 0151 0250 0400 0500	A F	R G	N	D01 D10	0	0	0	0	Air flowmeter
										8 A (1/4B), 200 L/min
										15 A (1/2B), 500 L/min
										15 A (1/2B), 1000 L/min
										25 A (1B), 3000 L/min
	40 A (1 1/2B), 6000 L/min									
	50 A (2B), 12000 L/min									
	Main unit: aluminum alloy									
	Degreasing*3									
	Rc thread*1									
	G thread*1									
	Air and nitrogen									
	24 Vdc, no communication, 4 to 20 mA open collector									
	24 Vdc, RS-485 communication, without output*2									
	None									
None										
None										
Anti-sulfidization treatment*3										
Inspection results										
Anti-sulfidization treatment + inspection results*3										
Traceability certificate										
Anti-sulfidization treatment + traceability certificate*3										
Product version										

- *1. A product with NPT connection specification is also available. For details, please contact us.
- *2. Models with an RS-485 communication function are not equipped with the 4-20 mA, open collector output feature.
- *3. Degreasing and anti-sulfidization treatment cannot be combined.

PA5 series cable with connector

Shape	Power supply	Cable properties	Cable length	Model No.	Lead color
	DC	Oil resistant, bend-tolerant UL2464 flame-resistant cable, EN compliant	2 m	PA5-4ISX2SK	1: brown, 2: white, 3: blue, 4: black
			5 m	PA5-4ISX5SK	

Note: Many other types are available. For details, contact our sales representatives.

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Specifications

Battery-driven type

Model No.	MCF0080	MCF0150	MCF0151	MCF0250	MCF0400	MCF0500
Gas types	Air, nitrogen. (Gas must be clean and dry, without corrosive components such as chlorine, sulfur and acid, and without dust or oil mist.)					
Flow rate range	0 to 200 L/min (normal)*1	0 to 500 L/min (normal)*1	0 to 1000 L/min (normal)*1	0 to 3000 L/min (normal)*1	0 to 6000 L/min (normal)*1	0 to 12000 L/min (normal)*1
Accuracy guaranteed flow rate range	4 to 200 L/min (normal)	10 to 500 L/min (normal)	20 to 1000 L/min (normal)	60 to 3000 L/min (normal)	120 to 6000 L/min (normal)	240 to 12000 L/min (normal)
Measurement accuracy	±3% FS ±1 digit					
Smallest detectable flow rate	2 L/min (normal)	5 L/min (normal)	10 L/min (normal)	30 L/min (normal)	60 L/min (normal)	120 L/min (normal)
Display resolution	1 L/min (normal)	1 L/min (normal)	2 L/min (normal)	5 L/min (normal)	10 L/min (normal)	10 L/min (normal)
Operating temperature range	Flowmeter: -10 to +60 °C (without freezing) Bundled battery: -10 to +45 °C					
Storage temperature range	Flowmeter: -20 to 70 °C (without freezing) Bundled battery: -10 to +45 °C					
Operating humidity range	0 to 90%RH (without condensation)					
Pipe size	8 A (1/4B)	15 A (1/2B)	15 A (1/2B)	25 A (1B)	40 A (1 1/2B)	50 A (2B)
Main body material	Aluminum alloy, with alumite treatment on the surface					
O-ring material	H-NBR					
Case material	Modified PPO					
Operating pressure range	-0.07 to 1.0 MPa					
Pressure resistance	1.5 MPa					
Mounting posture	Horizontal (flow: left to right, right to left), vertical (flow: top to bottom, bottom to top)					
Power supply	Four size AA batteries					
Sampling time / response time	1 s/30 s or less (time until 95% of final value for response to 0 to 100% step input)					
Output signal (instantaneous flow rate output)	None					
Event output	One open collector output (rating: 30 Vdc, 50 mA), and one battery alarm output					
Event function	Selectable from integrated pulse output,*2 instantaneous flow rate switch upper/lower limit, integrated flow switch count up/down, and alarm output					
Electrical connection	PA5 series VA connector with 4 pins					
Display	5-digit 7-segment LED/display switchable among instantaneous flow rate, integrated flow rate, and cost, displayed for 5 seconds after the switch is pressed					
Protective structure	IP65 (by JIS C0920 and IEC529 standards; water-proof and dust-proof structure on the assumption of indoor installation)					
Weight	400 g	400 g	400 g	500 g	700 g	1100 g

*1. "(Normal)" indicates a flow rate converted for conditions of 0 °C and 101.325 kPa.

*2. Integrated pulse output specification (selected through the main unit settings)

Pulse width is fixed at 125 ms Pulse weight

Model	Pulse weight (L/pulse)	Model	Pulse weight (L/pulse)	Model	Pulse weight (L/pulse)
MCF0080	10, 100, 1000	MCF0151	10, 100, 1000	MCF0400	100, 1000, 10000
MCF0150	10, 100, 1000	MCF0250	10, 100, 1000	MCF0500	100, 1000, 10000

Model No. configuration

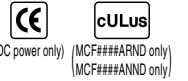
Ex.: MCF0080ARNB010B00

Battery-driven type

Basic model No.	Pipe size	Material	Connection	Gas type	Power supply, output, communication	Option 1	Option 2	Option 3	Appended No.	Description
MCF										Air Flowmeter
	0080									8 A (1/4B), 200 L/min
	0150									15 A (1/2B), 500 L/min
	0151									15 A (1/2B), 1000 L/min
	0250									25 A (1B), 3000 L/min
	0400									40 A (1 1/2B), 6000 L/min
	0500									50 A (2B), 12000 L/min
		A								Main unit: aluminum alloy
			R							Rc thread
			G							G thread
				N						Air/nitrogen
					B01					Battery-driven type
						0				None
							B			With battery box
								0		None
								D		Inspection results
								Y		Traceability certificate
									0	Product version

1 DIGITAL CONTROLLERS
2 RECORDERS, INDICATORS
3 CONVERTERS
4 FLAME SAFEGUARD SYSTEM
5 ACTUATORS
6 SENSORS
7 GAS FLOW MEASUREMENT AND CONTROL PRODUCTS

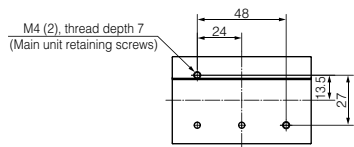
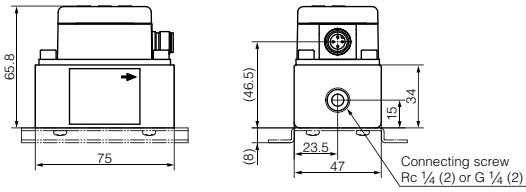
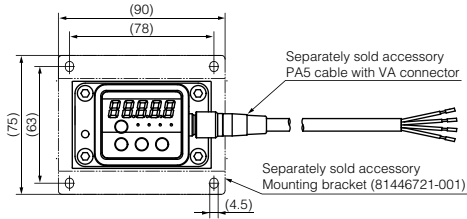
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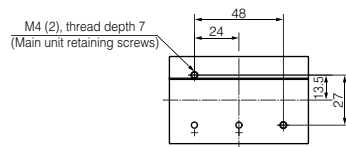
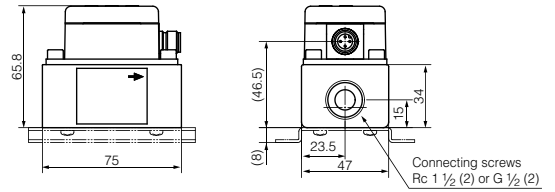
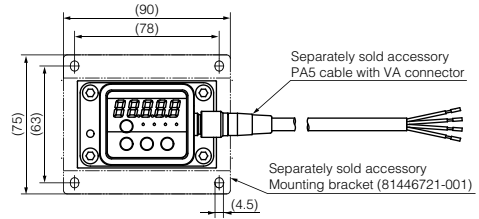
External dimensions

(Unit: mm)

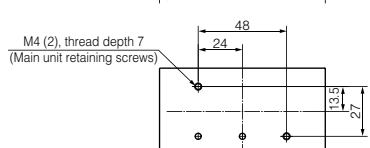
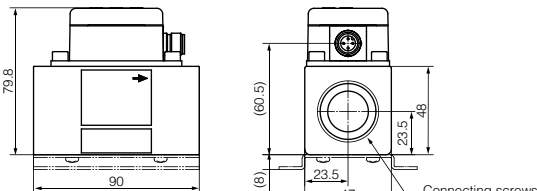
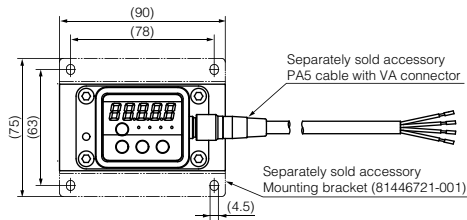
MCF0080



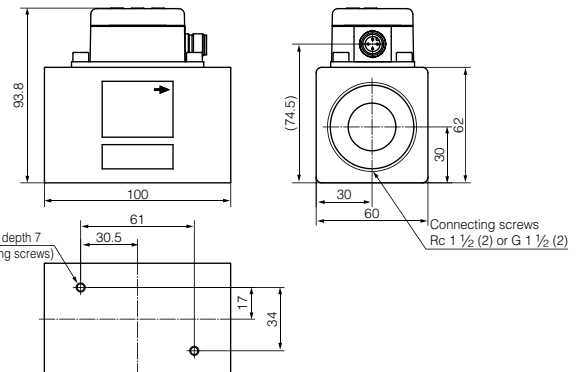
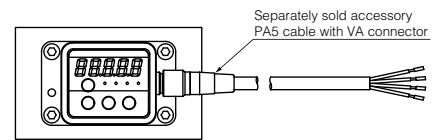
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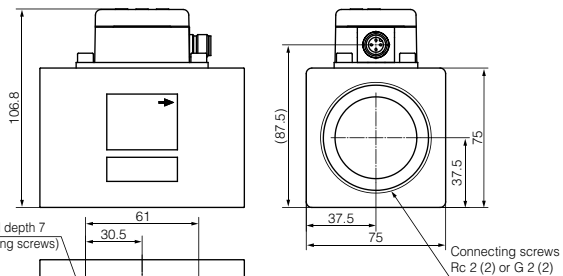
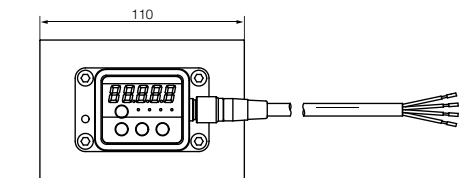
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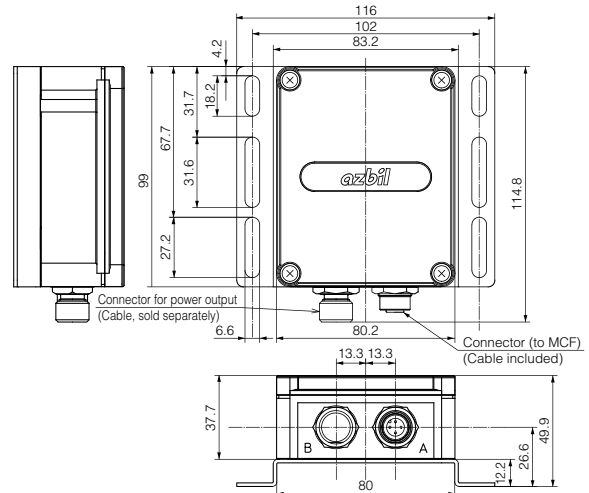
MCF0400



MCF0500



Battery box of battery-driven model



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