

MCF

Air Flowmeter

The MCF is a mass flowmeter specifically for compressed air or nitrogen use. It incorporates Yamatake's Micro Flow thermal mass-flow rate sensor.

The MCF can measure mass flow with an accuracy of $\pm 3\%$ FS over a 50:1 measurement range. Forward and reverse flow integration functions are provided.

Measurement is possible at up to 2 times the standard range with an accuracy of $\pm 10\%$ rdg.



Specifications

Model No.	MCF008	MCF015	MCF025	MCF040	MCF050
Gas types	Air/nitrogen. (Note that gas must be dry, without corrosive components such as chlorine, sulfur and acid. It must also be clean, without dust or oil mist.)				
Flow rate range	0 to 200L/min(normal) ^{*1}	0 to 500L/min(normal) ^{*1}	0 to 3000L/min(normal) ^{*1}	0 to 6000L/min(normal) ^{*1}	0 to 12000L/min(normal) ^{*1}
Reverse flow range	-60L/min(normal) ^{*2}	-150L/min(normal) ^{*2}	-900L/min(normal) ^{*2}	-1800L/min(normal) ^{*2}	-3600L/min(normal) ^{*2}
Extended range	400L/min(normal) ^{*3}	1000L/min(normal) ^{*3}	6000L/min(normal) ^{*3}	12000L/min(normal) ^{*3}	24000L/min(normal) ^{*3}
Accuracy guaranteed flow rate range	4 to 200L/min(normal) ^{*4}	10 to 500L/min(normal) ^{*4}	60 to 3000L/min(normal) ^{*4}	120 to 6000L/min(normal) ^{*4}	240 to 12000L/min(normal) ^{*4}
Measurement accuracy	$\pm 3\%$ FS				
Smallest detectable flow rate	2L/min(normal)	5L/min(normal)	30L/min(normal)	60L/min(normal)	120L/min(normal)
Display resolution	1L/min(normal)	1L/min(normal)	5L/min(normal)	10L/min(normal)	10L/min(normal)
Temperature	-10 to +60°C (without freezing)				
Storage temperature	-20 to +70°C (without freezing)				
Humidity	0 to 90 % RH (without condensation)				
Pipe size	8A(1/4B)Rc	15A(1/2B)Rc	25A(1B)Rc	40A(1 1/2B)Rc	50A(2B)Rc
Body material	Aluminum alloy, with alumite treatment on the surface				
Case material	Denatured PPO				
Operating pressure range	-0.07 to +1.0 MPa				
Pressure resistance	1.5 MPa				
Mounting orientation	-Horizontal (flow: left→right, right→left) -Vertical (flow: up→down, down→up)				
Rated voltage	24 Vdc, 120 mA max.				
Sampling cycle/ response time	50 ms to 1.5 s max. (time for 95 % of response to 0 →100 % FS step input)				
Output signal (instantaneous flow rate)	4 to 20 mA, allowable load resistance 300Ω max.				
Event output	One open collector output (rating 30 Vdc, 50 mA), with output type selectable from event function.				
Event function	Selectable from pulse output for integration ^{*5} , instantaneous flow rate high/low limit alarm, integration count up/down, or alarm output.				
Electrical connection	PA5 Series VA connector (4 pins)				
Display	7-segment, 5-digit display changeable between instantaneous flow rate, integrated (cumulative) flow, and cost.				
Protective structure	IP65. (Rating is based on JIS C 0920 and IEC529. For purposes of installation indoors, device is waterproof and dustproof.)				
Standards compliance	CE marked : EN61326-2-3 : 2006				
Mass	400 g	400 g	500 g	700 g	1100 g

Notes: *1. The unit L/min (normal) refers to the volumetric flow rate adjusted for 0 °C, 101.325 kPa. *4. The guaranteed accuracy range figures are $\pm 3\%$ FS.

*2. Flow is displayed as a negative value even if the setting is not changed.

*5. Integrated pulse output specifications (selectable by settings)

-Pulse width: 50 ms, 250 ms, 500ms-

*3. Indication value and integrated pulse output can be displayed and output even if the setting is not changed, but 4–20 mA output requires a change of the span setting.

-Pulse weight:

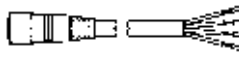
Model No.	Pulse weight (L/pulse)
MCF008	10, 100, 1000
MCF015	10, 100, 1000
MCF025	10, 100, 1000
MCF040	100, 1000, 10000
MCF050	100, 1000, 10000

Selection Guide

Example: MCF0080ARND010000

Segment	Model No. selection		Description
I	Basic No.	MCF	Air flowmeter
II	Pipe size	008	8A (1/4B)
		015	15A (1/2B)
		025	25A (1B)
		040	40A (1 1/2B)
		050	50A (2B)
III	Model	0	Flowmeter
IV	Material	A	Body: aluminum alloy
V	Connection	R	Rc thread
VI	Gas type	N	Air/nitrogen
VII	Power/output	D01	24 Vdc / 4-20 mA output / one open collector
VIII	Option	0	(None)
IX	Connected device	0	(None)
X	Options	0	(None)
		D	Inspection certificate provided
XI	Design code	0	Product version

● PA5 Series Cable with VA Connector

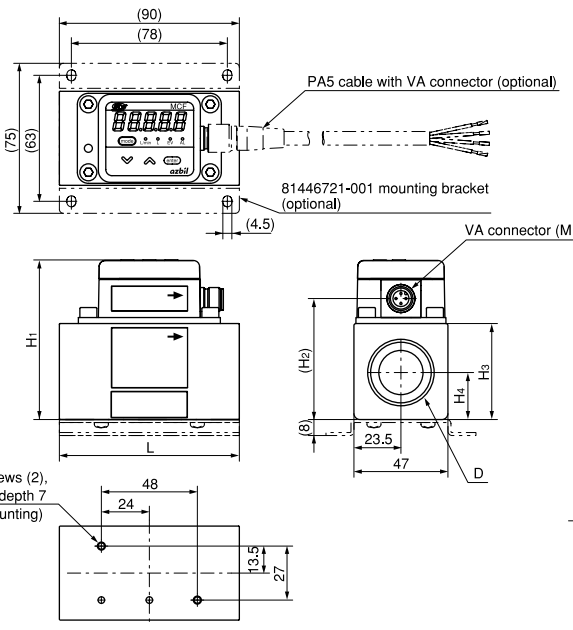
Shape	Power	Cable properties	Cable length	Model No.	Lead color
	DC	Oil resistant, bend-tolerant UL2464 Flame-resistant cable EN-compliant.	2 m	PA5-4ISX2MK-E	1: Brown. 2: White. 3: Blue. 4: Black.
			5 m	PA5-4ISX5MK-E	1: Brown. 2: White. 3: Blue. 4: Black.

Note: Types other than the above are available. Please contact Yamatake Corporation.

Dimensions

(Unit: mm)

• MCF008/015/025



PA5 cable with VA connector (optional)

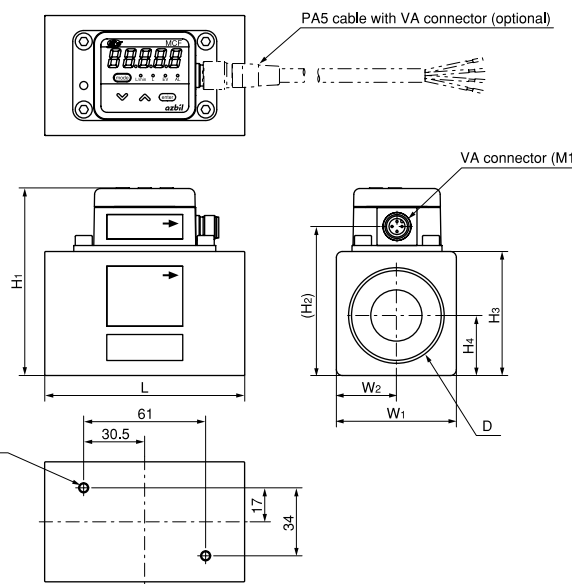
81446721-001 mounting bracket (optional)

VA connector (M12)

M4 screws (2), thread depth 7 (for mounting)

	MCF008	MCF015	MCF025
H ₁	65.8	65.8	79.8
H ₂	46.5	46.5	60.5
H ₃	34	34	48
H ₄	15	15	23.5
L	75	75	90
D	Rc1/4	Rc1/2	Rc1

• MCF040/050



PA5 cable with VA connector (optional)

VA connector (M12)

M5 screws (2), thread depth 7 (for mounting)

	MCF040	MCF050
H ₁	93.8	106.8
H ₂	74.5	87.5
H ₃	62	75
H ₄	30	37.5
L	100	110
W ₁	60	75
W ₂	30	37.5
D	Rc1 1/2	Rc2