

Azbil

Технические характеристики

Расходомер воздуха

MCF

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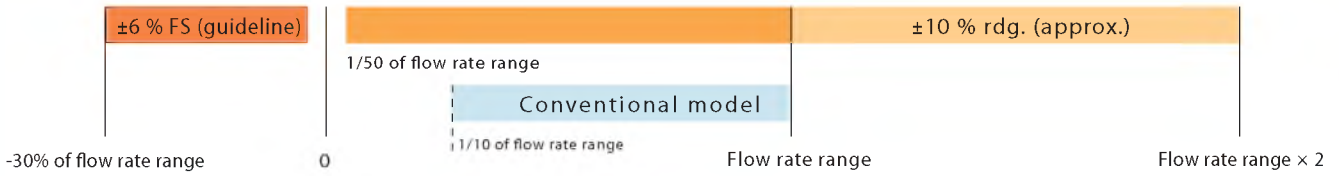
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A dedicated air/nitrogen mass flowmeter, indispensable for cutting compressor energy use.

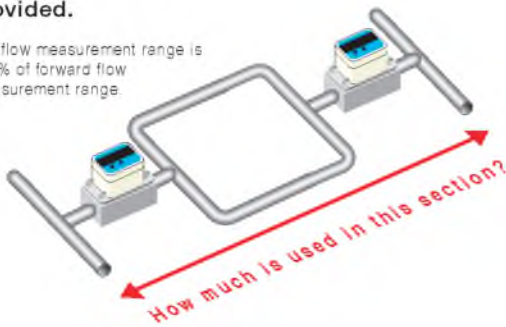
■ Practical measurement range of 50:1 and extended range function providing up to 2 times the standard range are useful for detecting air leakage



■ Reverse flow detection function

Useful for loop piping. Reverse flow detection and forward-reverse flow integration functions are provided.

* Reverse flow measurement range is up to 30% of forward flow rate measurement range.



■ Model lineup meets a variety of application requirements

For ease of use and ease of selection, models in a broad range from small to large are available.



Pipe size: 8/15/25/40/50A
Range: 200/500/1000/3000
/6000/12000 L/min

■ Easy maintenance without removal from the piping

The measurement unit can be dismantled and replaced for easy maintenance at the application site without disconnecting the pipes.

(Pipe sizes 25/40/50A only)



■ Use a single MCF for flow in various directions

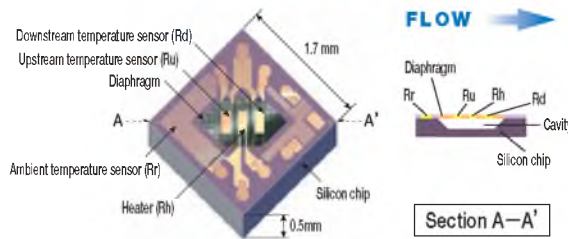
The display unit can rotate more than 90° counterclockwise and more than 180° clockwise.



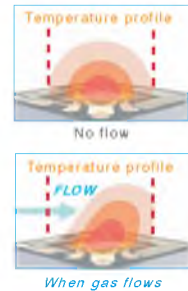
■ The MCF series is a mass flowmeter.

Thermal mass flow measurement using Azbil Corporation's Micro Flow (μF) sensor ensures correct measurement even if gas temperature or pressure changes.

Sensor structure



Measurement Principle



■ Battery drive model line up



Specifications

Model No.	MCF0080	MCF0150	MCF0151	MCF0250	MCF0400	MCF0500
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 [L/min(normal)] *1	0 to 200	0 to 500	0 to 1000	0 to 3000	0 to 6000	0 to 12000
Reverse flow range [L/min(normal)] *2	-60	-150	-300	-900	-1800	-3600
Extended range [L/min(normal)] *3	400	1000	2000	6000	12000	24000
Accuracy guaranteed flow rate range [L/min(normal)]	4 to 200	10 to 500	20 to 1000	60 to 3000	120 to 6000	240 to 12000
Measurement accuracy	± 3% FS					
Smallest detectable flow rate [L/min(normal)]	2	5	10	30	60	120
Display resolution [L/min(normal)]	1	1	2	5	10	10
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)	15A(1/2B)	15A(1/2B)	25A(1B)	40A(1 1/2B)	50A(2B)
Connection type	MCF□□□□□R: Rc thread MCF□□□□□G: G thread					
Body material	Aluminum alloy					
O-ring material	MCF□□□□□A: H-NBR MCF□□□□□F: FKM					
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	24V DC, 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 ("D01" 4 to 20 mA model only) *4	4 to 20 mA, allowable load resistance 300 Ω max.					
Event output ("D01" 4 to 20 mA model only) *4	One open collector output (rating 30V DC, 50 mA), with output type selectable from event function.					
Event function ("D01" 4 to 20 mA model only) *4	Selectable from pulse output for integration *5, instantaneous flow rate high/low limit alarm, integration count up/down, or alarm output.					
Communications("D10" RS485 Communication model only)	RS-485 Communications (3-wire system), MODBUS Protocol Transmission speed 19200 bps max.					
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					
Weight	400 g	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. *2. Flow is displayed as a negative value even if the setting is not changed.

*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.

*4. For RS485 communication models, there is no terminal output.

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

• Pulse width: 50 ms, 250 ms, 500 ms

• Pulse weight:

Model No.	Pulse weight (L/pulse)	Model No.	Pulse weight (L/pulse)	Model No.	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

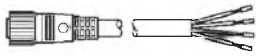
Selection guide

MCF□□□□□ND□□00□□

Basic model no	Pipe size/range	Material	Connection	Gas type	Power/output	Option 1	Option 2	Option 3	Design code	Description
MCF										Air flowmeter MCF
	0080									8A(1/4B) • 200L/min
	0150									15A(1/2B) • 500L/min
	0151									15A(1/2B) • 1000L/min
	0250									25A(1B) • 3000L/min
	0400									40A(1 1/2B) • 6000L/min
	0500									50A(2B) • 12000L/min
		A								Body : aluminum alloy O-ring:H-NBR
		F								Body : aluminum alloy with treated to be oil inhibiting,O-ring : fluororubber(FKM)
			R							Rc thread
			G							G thread
				N						Air/Nitrogen
					D01					24V DC / 4--20 mA output / one open collector
					D10					24V DC / RS-485 communication / none outputs*1
						0				(None)
							0			(None)
								0		(None)
									K	Antisulfidization*2
									D	Inspection data provided
									L	Antisulfidization + inspection data*2
									Y	Traceability certificate
									X	Antisulfidization + traceability Certificate*2
									0	Product version

■ Accessories (sold separately)

• PA5 series connector cables

Shape	Power	Cable properties	Cable length	Model No.	Lead color
	DC	Vinyl-insulated cable with high resistance to oil and vibration (UL/NFPA79 CM, CL3)	2 m	PA5-4ISX2SK	1: Brown, 2: White, 3: Blue, 4: Black
			5 m	PA5-4ISX5SK	1: Brown, 2: White, 3: Blue, 4: Black

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

• Mounting bracket (for MCF0080/0150/0151/0250)

Model No.
81446721-001

• Measurement module (for MCF025,040,050)^{*1}

Model No.	MCF model No.	Description
81447192-201	For MCF□□□□A□ND01□□□□ "□" is O, D or Y	With 4 to 20 mA output, No anti-sulfide treatment
81447192-221	For MCF□□□□A□ND10□□□□ "□" is O, D or Y	With RS485 communications, No anti-sulfide treatment
81447192-401	For MCF□□□□F□ND01□□□□ "□" is O, D or Y	With 4 to 20 mA output, Oil inhibiting, No anti-sulfide treatment
81447192-421	For MCF□□□□F□ND10□□□□ "□" is O, D or Y	With RS485 communications, Oil inhibiting, No anti-sulfide treatment
81447192-601	For MCF□□□□A□ND01□□□□ "□" is K, L or X	With 4 to 20 mA output, With anti-sulfide treatment
81447192-621	For MCF□□□□A□ND10□□□□ "□" is K, L or X	With RS485 communications, With anti-sulfide treatment

*Note 1 Measurement modules in models MCF008, 015 (pipe sizes 8A, 15A) cannot be replaced.

• Mist Separator MFF25S series

Selection guide

Basic model No.	Type	Pipe size + treated flow rate	Design code	Description		
MFF25S	N			Mist separator for MCF models		
				Housing + element		
				Pipe size	Treated flow rate	For MCF0080
		080300	8A(1/4B)	300 L/min		
		080750	8A(1/4B)	750L/min	For MCF0150	
		150750	15A(1/2B)	750L/min		
		151500	15A(1/2B)	1500L/min	For MCF0151	
		254000	25A(1B)	4000L/min		
		256000	25A(1B)	6000L/min	For MCF0250	
	000		None			

Options

Name	Model No.	Notes
Replacement filter element	81441628-001	For MFF25SN080300000
	81441628-002	For MFF25SN080750000, For MFF25SN150750000
	81441628-003	For MFF25SN151500000
	81441628-004	For MFF25SN254000000
	81441628-005	For MFF25SN256000000
Mounting bracket	81441629-001	For MFF25SN080300000
	81441629-002	For MFF25SN080750000, For MFF25SN150750000, For MFF25SN151500000
	81441629-003	For MFF25SN254000000, For MFF25SN256000000

• Mist Separator MFF25L series

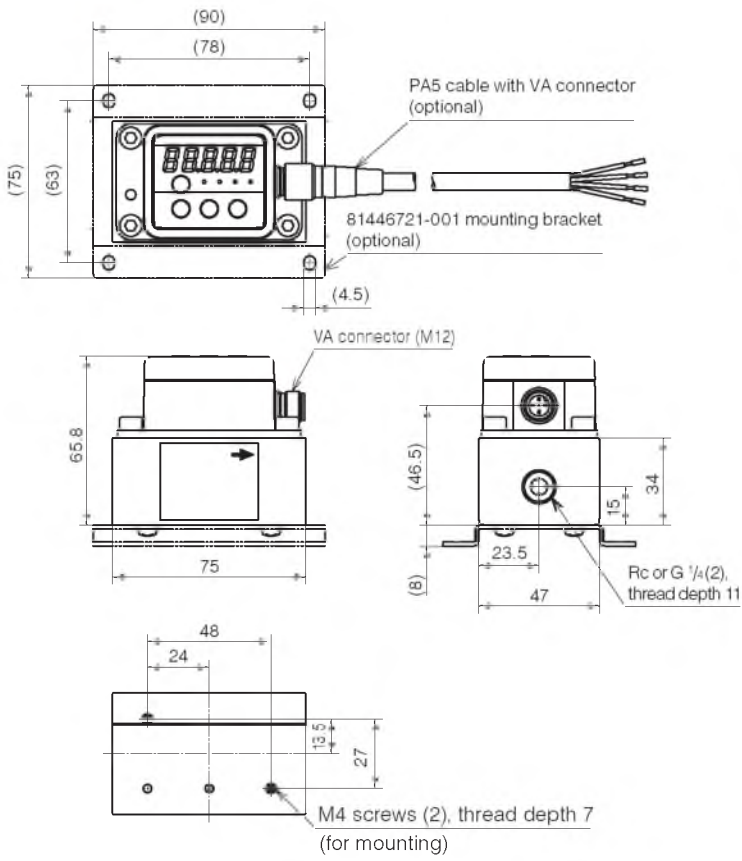
Selection guide

Basic model No.	Type	Pipe size + treated flow rate	Design code	Description		
MFF25L	N			Mist separator for Micro Flow products		
				Housing + element		
				Pipe size	Treated flow rate	For MCF0400
		406600	40A(1 1/2B)	6600L/min		
		501380	50A(2B)	13800L/min	For MCF0500	
			000			None

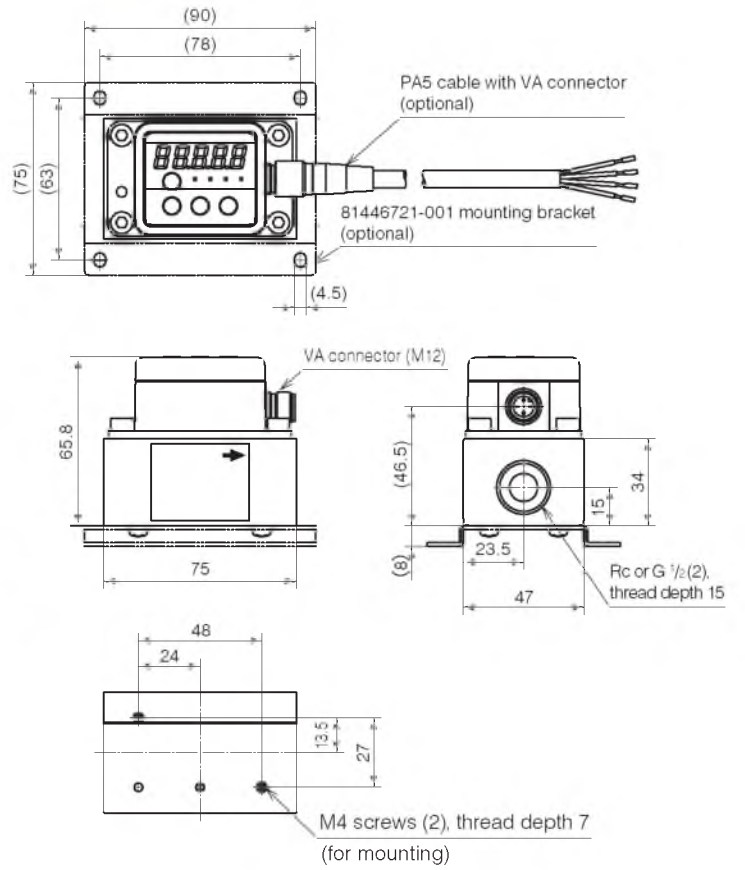
Options

Name	Model No.	Notes
Replacement filter element	81441630-001	For MFF25LN406600000
	81441630-002	For MFF25LN501380000

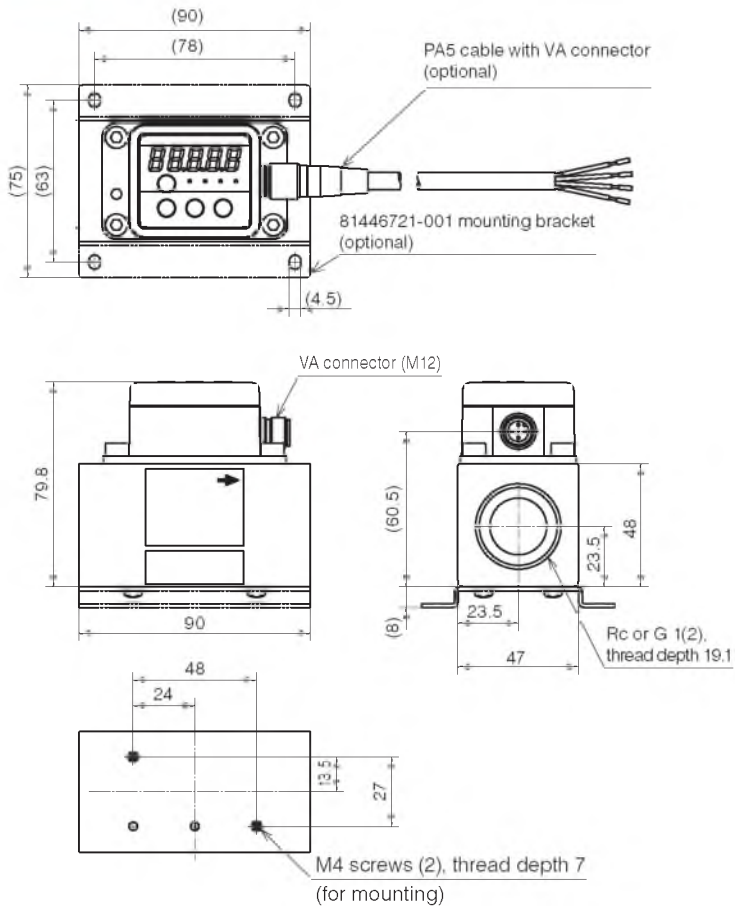
MCF0080



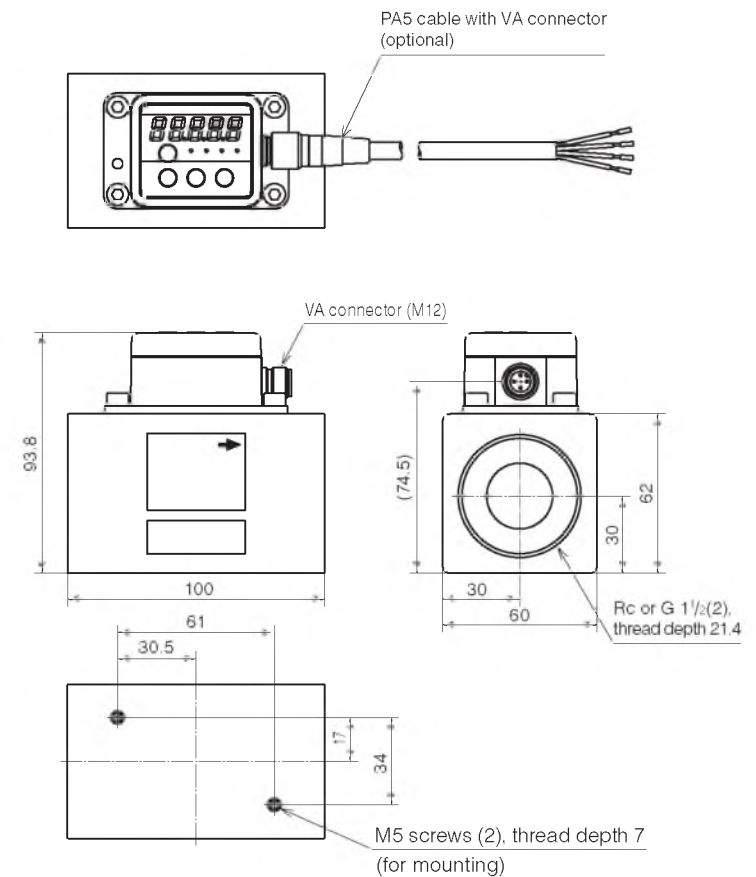
MCF0150 / MCF0151



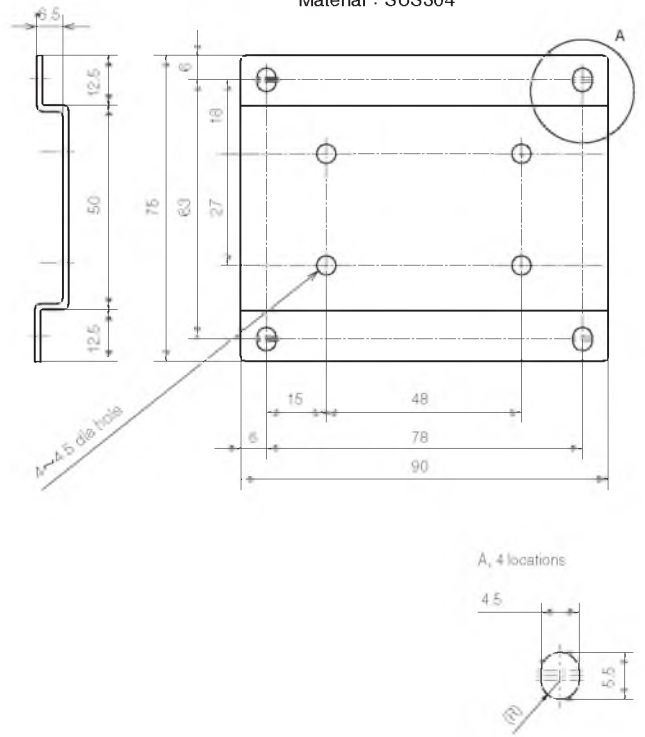
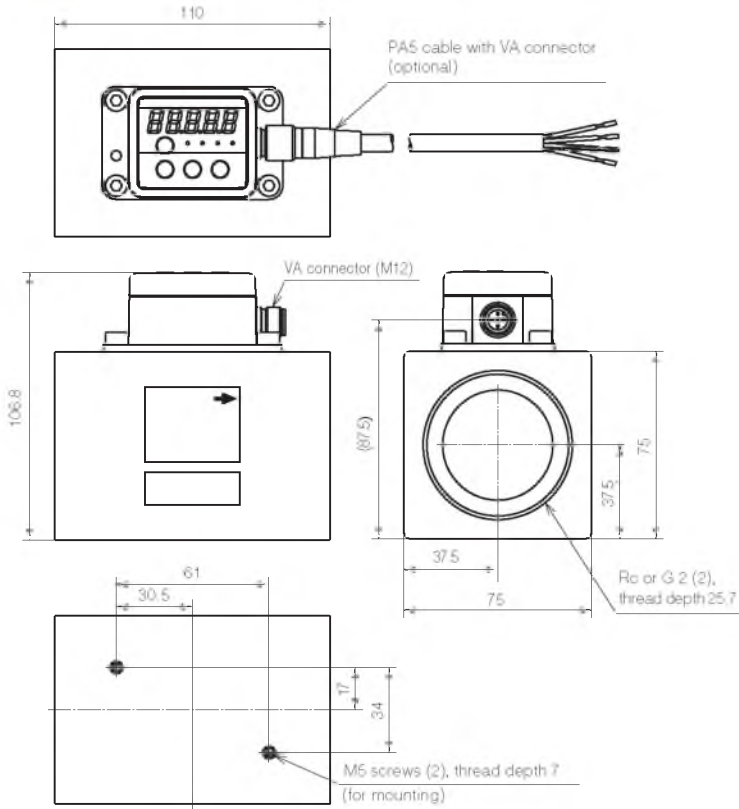
MCF0250



MCF0400



Material : SUS304



Wiring pin assignment

(1) MCF□□□□□□ND01□□□□
4-20mA, open collector output

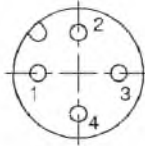
(2) MCF□□□□□□ND10□□□□
(RS-485)

MCF side
Pin assignment
(male)

PA5 side with VA connector
Pin assignment
(female)

Connector pin No.,
PA5 lead color, and signal

- 1 : Brown ···· V+: 24 Vdc
- 2 : White ···· I+: 4 to 20 mA output
- 3 : Blue ···· COM
- 4 : Black ···· EV: Event output

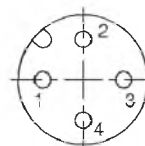
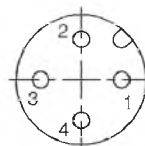


MCF side
Pin assignment
(male)

PA5 side with VA connector
Pin assignment
(female)

Connector pin No.,
PA5 lead color, and signal

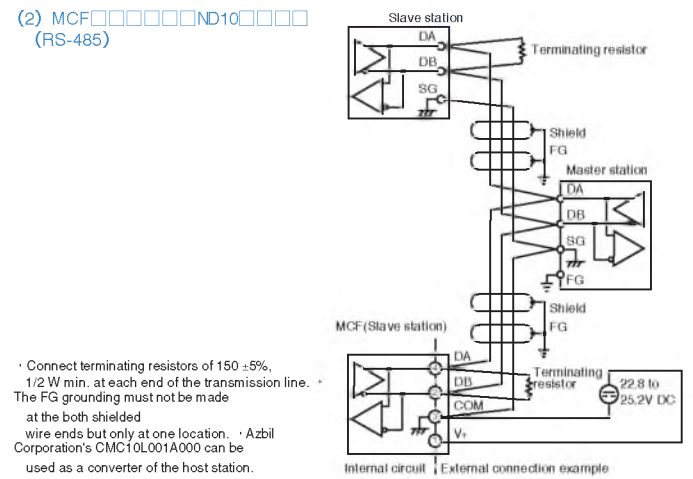
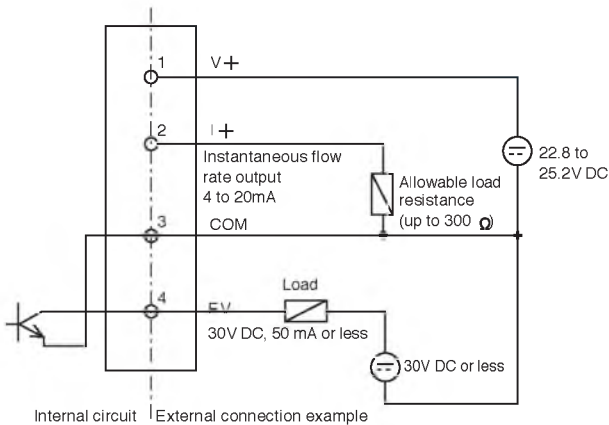
- 1 : Brown ···· V+: DC24V
- 2 : White ···· DB: RS485
- 3 : Blue ···· COM / SG
- 4 : Black ···· DA: RS485



Wiring example

(1) MCF□□□□□□ND01□□□□
4-20mA, open collector output

(2) MCF□□□□□□ND10□□□□
(RS-485)



Specifications

Model No.	MCF0080	MCF0150	MCF0151	MCF0250	MCF0400	MCF0500
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 [L/min(normal)] *1	0 to 200	0 to 500	0 to 1000	0 to 3000	0 to 6000	0 to 12000
Accuracy guaranteed flow rate range [L/min(normal)]	4 to 200	10 to 500	20 to 1000	60 to 3000	120 to 6000	240 to 12000
Measurement accuracy	± 3% FS					
Smallest detectable flow rate [L/min(normal)]	2	5	10	30	60	120
Display resolution [L/min(normal)]	1	1	2	5	10	10
Temperature	-10 to +60 °C (without freezing)					
Storage temperature	-10 to +60 °C (without freezing)					
Humidity	0 to 90 % RH (without condensation)					
Pipe size	8A(1/4B)	15A(1/2B)	15A(1/2B)	25A(1B)	40A(1 1/2B)	50A(2B)
Connection type	MCF□□□□□R: Rc thread MCF□□□□□G: G thread					
Body material	Aluminum alloy					
O-ring material	H-NBR					
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)					
Power supply	4AA alkaline batteries*2					
Sampling cycle/ response time	1s / 30s max					
Output signal	no signal output					
Event output	Two open collector output (rating 30V DC, 50 mA) ① Event ② Battery alarm					
Event function	Selectable from pulse output for integration*2, 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.)					
Weight	400 g	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. *2. The 4AA batteries included in the battery box kit are for a test run.

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

• Pulse width: 125ms

• Pulse weight:

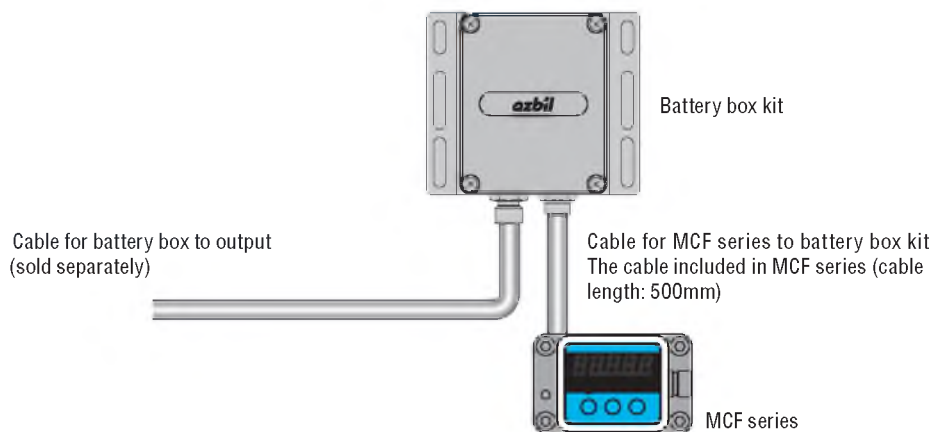
Model No.	Pulse weight (L/pulse)	Model No.	Pulse weight (L/pulse)	Model No.	Pulse weight (L/pulse)
MCF0080	10, 100, 1000	MCF0151	10, 100, 1000	MCF0400	100, 1000, 10000
MCF0150	10, 100, 1000	MCF0250	10, 100, 1000	MCF0500	100, 1000, 10000

Selection guide

MCF□□□□A□NB010B□0

Basic model no	Pipe size/range	Material	Connection	Gas type	Power/output	Option 1	Option 2	Option 3	Design code	Description
MCF	0080	A	R	N	B01	0	B	0	0	Air flowmeter MCF
	0150									8A(1/4B) • 200L/min
	0151									15A(1/2B) • 500L/min
	0250									15A(1/2B) • 1000L/min
	0400									25A(1B) • 3000L/min
	0500									40A(1 1/2B) • 6000L/min
										50A(2B) • 12000L/min
										Body : aluminum alloy, O-ring:H-NBR
										Rc thread
										G thread
	Air/Nitrogen									
	Battery drive									
	(None)									
	(None)									
	(None)									
	D	Inspection data provided								
	Y	Traceability certificate								
	0	Product version								

■ Accessories, electrical connection



• MCF series to battery box kit

MCF□□□□□□NB010B□□

Shape	Cable properties	Cable length	Model No.
	Vinyl-insulated cable with high resistance to oil and vibration (UL/NFPA79 CM, CL3)	2m	PA5-4ISB2SK
		3m	PA5-4ISB3SK
		5m	PA5-4ISB5SK

• Cable for battery box to output

Shape	Cable properties	Cable length	Model No.	Lead color
	Vinyl-insulated cable with high resistance to oil and vibration (UL/NFPA79 CM, CL3)	2m	PA5-4ISX2SK	1: Brown, 2: White, 3: Blue, 4: Black
		5m	PA5-4ISX5SK	1: Brown, 2: White, 3: Blue, 4: Black

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

• Measurement module

Model No.	MCF model No.	Description
81447192-241	For MCF□□□□□□NB01□□□□ "□" is 0, D or Y	Battery drive model, No anti-sulfide treatment

• Mist Separator MFF25S series

Selection guide

Basic model No.	Type	Pipe size + treated flow rate	Design code	Description																														
MFF25S	N			Mist separator for MCF models																														
				Housing + element																														
				<table border="1"> <thead> <tr> <th>Pipe size</th> <th>Treated flow rate</th> <th></th> </tr> </thead> <tbody> <tr> <td>080300</td> <td>8A(1/4B)</td> <td>300 L/min</td> <td rowspan="2">For MCF0080</td> </tr> <tr> <td>080750</td> <td>8A(1/4B)</td> <td>750L/min</td> </tr> <tr> <td>150750</td> <td>15A(1/2B)</td> <td>750L/min</td> <td>For MCF0150</td> </tr> <tr> <td>151500</td> <td>15A(1/2B)</td> <td>1500L/min</td> <td>For MCF0151</td> </tr> <tr> <td>254000</td> <td>25A(1B)</td> <td>4000L/min</td> <td rowspan="2">For MCF0250</td> </tr> <tr> <td>256000</td> <td>25A(1B)</td> <td>6000L/min</td> </tr> <tr> <td></td> <td></td> <td></td> <td>000</td> <td>None</td> </tr> </tbody> </table>	Pipe size	Treated flow rate		080300	8A(1/4B)	300 L/min	For MCF0080	080750	8A(1/4B)	750L/min	150750	15A(1/2B)	750L/min	For MCF0150	151500	15A(1/2B)	1500L/min	For MCF0151	254000	25A(1B)	4000L/min	For MCF0250	256000	25A(1B)	6000L/min				000	None
Pipe size	Treated flow rate																																	
080300	8A(1/4B)	300 L/min	For MCF0080																															
080750	8A(1/4B)	750L/min																																
150750	15A(1/2B)	750L/min	For MCF0150																															
151500	15A(1/2B)	1500L/min	For MCF0151																															
254000	25A(1B)	4000L/min	For MCF0250																															
256000	25A(1B)	6000L/min																																
			000	None																														

Options

Name	Model No.	Notes
Replacement filter element	81441628-001	For MFF25SN0803000000
	81441628-002	For MFF25SN0807500000, For MFF25SN1507500000
	81441628-003	For MFF25SN1515000000
	81441628-004	For MFF25SN2540000000
	81441628-005	For MFF25SN2560000000
Mounting bracket	81441629-001	For MFF25SN0803000000
	81441629-002	For MFF25SN0807500000, For MFF25SN1507500000, For MFF25SN1515000000
	81441629-003	For MFF25SN2540000000, For MFF25SN2560000000

• Mist Separator MFF25L series

Selection guide

Basic model No.	Type	Pipe size + treated flow rate	Design code	Description																
MFF25L	N			Mist separator for Micro Flow products																
				Housing + element																
				<table border="1"> <thead> <tr> <th>Pipe size</th> <th>Treated flow rate</th> <th></th> </tr> </thead> <tbody> <tr> <td>406600</td> <td>40A(1 1/2B)</td> <td>6600L/min</td> <td>For MCF0400</td> </tr> <tr> <td>501380</td> <td>50A(2B)</td> <td>13800L/min</td> <td>For MCF0500</td> </tr> <tr> <td></td> <td></td> <td></td> <td>000</td> <td>None</td> </tr> </tbody> </table>	Pipe size	Treated flow rate		406600	40A(1 1/2B)	6600L/min	For MCF0400	501380	50A(2B)	13800L/min	For MCF0500				000	None
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501380	50A(2B)	13800L/min	For MCF0500																	
			000	None																

Options

Name	Model No.	Notes
Replacement filter element	81441630-001	For MFF25LN4066000000
	81441630-002	For MFF25LN5013800000

По вопросам продаж и поддержки обращайтесь:

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