

FA4000 series FLOW MONITOR

GENERAL

FA4000 series FLOW MONITOR is a flow indicator with alarm contact for liquid application.

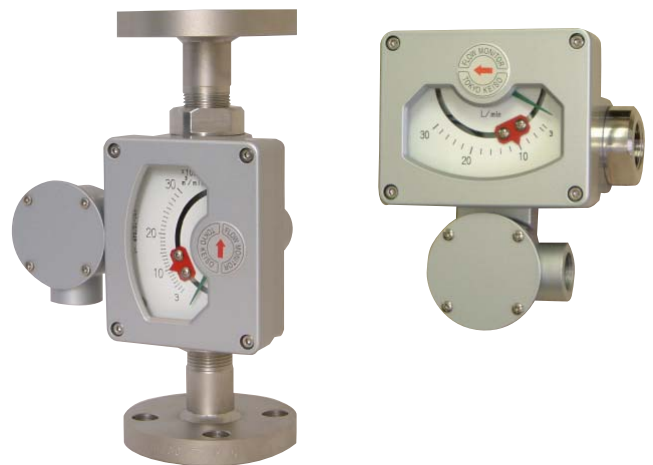
Size line up 10mm to 40mm and full-scale flow rate 1L/min to 130L/min are available for wide selection.

FEATURES

- SAVING COST**
One FA4000 unit covers flow measurement and alarm contact output.
- COMPACT AND LIGHT DESIGN**
FLOW MONITOR is very much suitable for assembling onto equipment and devices due to its compact and light design.
- WATERPROOF CONSTRUCTION**
FLOW MONITOR can also be used under splashes of water.
- WIDE APPLICATION**
Opaque liquid or pressurization hot water is available.
- ADJUSTABLE ALARM POINT**
Alarm setting point is freely adjustable from housing front even after installation.
- ANY FLOW DIRECTION**
FA4000 can be installed for any flow direction. (Consult us if the flow direction is top to bottom.)
- QUICK DELIVERY AND COMPETITIVE PRICE**
The standardized specification allows reasonable quick delivery time.

STANDARD SPECIFICATION

- Applicable fluid : Water or Low viscosity liquids
- Available scale range : (Min.) 0.1 to 1 L/min
: (Max.) 13 to 130 L/min
- Max. Op. Temp. : 0 to 100°C
(When fluid temperature exceeds 80°C,
the material of O-ring is FPM.)
- Max. Op. Press. : 1.0MPa
- Flow direction : Bottom to Top, Left to Right, Right to Left, Top to Bottom
- Process connection : 10mm (3/8") to 40mm (1 1/2)
- Connection rating : Rc, NPT, JIS10K FF, JIS10K RF,
ANSI150Lb RF, JPI150Lb RF
- Indication accuracy : ±5% F.S.
- Alarm setting accuracy : ±2% F.S.
- Alarm setting range : 10 to 100% (F.S.)
- Alarm contact : 1 point (High or Low)
- Alarm reset span : 15% F.S.
- Alarm switch : Self holding type
- Contact capacity : DC100V/10W, AC125V / 10VA
- Insulation resistance : 100MΩ at DC500V Mega
- Withstand voltage : AC1500V (1 min.)
- Alarm setting : Set by screw (Freely adjustable from housing front)
- Finishing painted : Metallic silver (Except SUS material)
- Cable entry : G1/2 (Female thread)
- Wiring connection : M3 screw terminal



- Construction : IP65 equivalent
Intrinsically safe (Supplied with safety barrier)
- Installation : Piping support

RECOMMENDED APPLICATION

- Cooling water line
- Monitoring of leakage of sealing liquids
- Cooling fluids lines in injection moulding machines

BEFORE OPERATING

1) FA4000 FLOW MONITOR shows flowrate by magnet coupling. A magnet is moulded in the float and in case ferrous powder is involved in the fluids, smooth movement of float will not be obtained. It is recommended to install a magnet strainer (option) in upstream of the line to eliminate the ferrous contents.

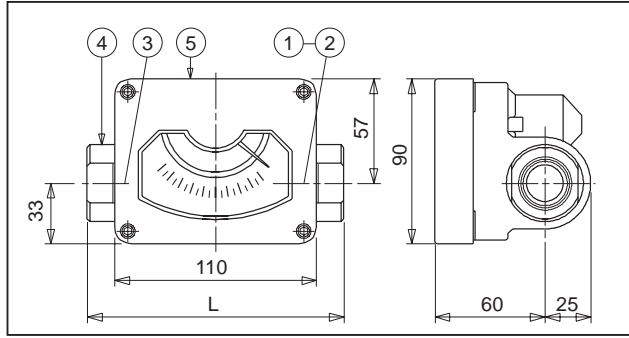
2) The contact output of FLOW MONITOR is reed switch contact. In case the contact capacity is not sufficient for the operation, use RD-1000 type RELAY DRIVER for capacity increment. We can supply a relay driver as option.

Relay driver Model : RD-1000
Refer to the OPTIONAL UNIT.

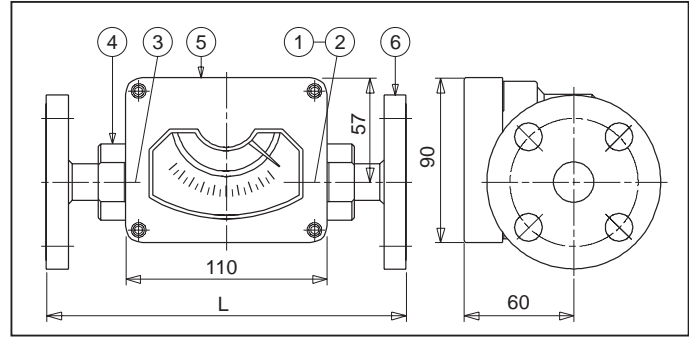
DIMENSION AND MATERIAL

□ DIMENSION

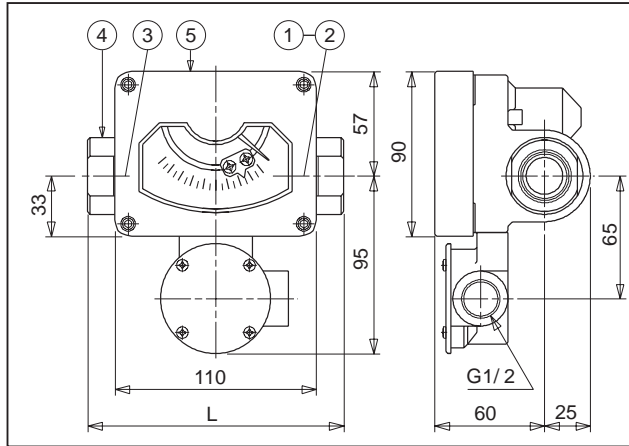
FA4 □ □ R (N)- □ □ □ 0-A



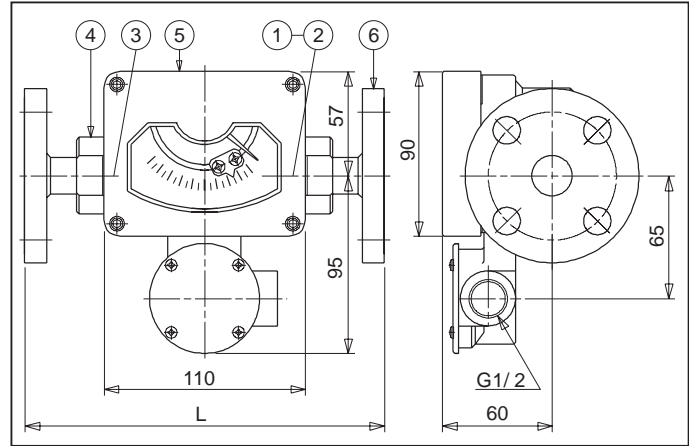
FA4 □ □ A-D- □ □ □ 0-A



FA4 □ □ R (N)- □ □ □ 1~4-A



FA4 □ □ A-D- □ □ □ 1~4-A

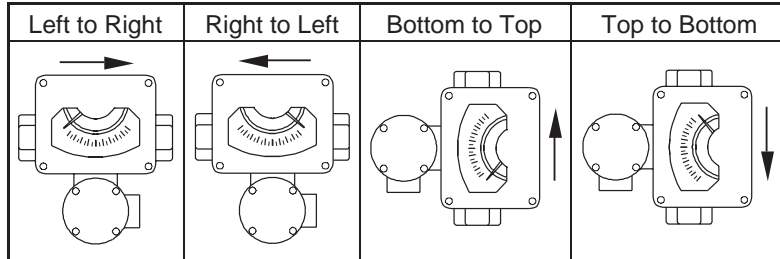


□ MATERIAL (STANDARD)

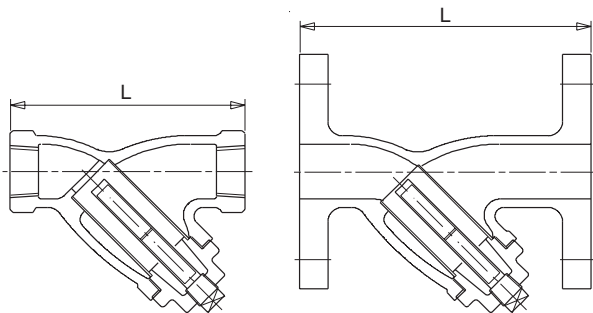
No.	Part name	Material		
		1	2	3
①	Tapered tube	SUS316	SUS316	SUS316
②	Float	SUS316	SUS316	SUS316
③	O-ring	NBR *1	NBR *1	NBR *1
④	Connecting fitting	SCS14A *2	SCS14A *2	SCS14A *2
⑤	Housing	ADC 12	ADC 12	ADC 12
⑥	Flange	SS 400	SUS304	SUS316

*1: When fluid temperature exceeds 80°C, the material of O-ring is FPM.
 *2: The material of connecting fittings may be replaced by SUS316.

□ INDICATION DISPLAY DIRECTION (FLOW DIRECTION)



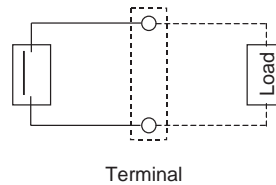
□ MAGNET STRAINER (OPTION)



Connection rating : Rc

Connection rating : JIS10K FF

□ WIRING



Magnet strainer dimension (mm)

Nominal diameter	10 (3/8")	15 (1/2")	20 (3/4")	25 (1")	32 (1 1/4")	40 (1 1/2")
Thread	L 70	85	100	115	135	150
Flange	L -	120	130	150	170	190

Max. Op. Press. : 1.5MPa
 Max. Op. Temp. : 200°C
 Filter : 80 mesh
 Material (Body) : SCS13 or SCS14, Others
 (Filter) : SUS304 or SUS316
 (Packing) : PTFE

Note:
 The above figures and also the dimension in the table at the right side are for SCS13 (Material 1 and 2) and SCS14 (Material 3) for the material of the strainer itself under JIS 10K FF and Rc connection. If the connection and the material are different from the above-mentioned ones, the dimensions may be changed. The specification shall be confirmed beforehand and contact factory for details.

MODEL CODE

Model code										Description									
FA4	□	□	□	-□□	□	□	-A	/□□□		Flow rate		Connection (std.)			Available connection, Dimension Size (mm)				
										(L/min)	Size (mm)	Connection	Dimension (mm)	3/8 L=150	3/4 L=150	1 L=150	10 L=220	20 L=220	25 L=230
Scale range	1					1				0.1 ~ 1 Flow direction of bottom to top is applicable	15	Thread	L=150	3/8 L=150	3/4 L=150	1 L=150			
	2									0.2 ~ 2	15	Flange	L=220	10 L=220	20 L=220	25 L=230			
	3									0.5 ~ 5	15	Thread	L=150	3/8 L=150	3/4 L=150	1 L=150			
	4									1 ~ 10	15	Flange	L=220	10 L=220	20 L=220	25 L=230			
	5									1.5 ~ 15	20	Thread	L=150	3/8 L=150	1/2 L=150	1 L=150			
	6									2 ~ 20	20	Flange	L=220	10 L=220	15 L=220	25 L=230			
	7									3 ~ 30	20	Thread	L=150	3/8 L=150	1/2 L=150	1 L=150			
	8									5 ~ 50	25	Flange	L=220	10 L=220	15 L=220	25 L=230			
	9									6 ~ 60	25	Thread	L=150	3/8 L=150	1/2 L=150	3/4 L=150			
	A									7 ~ 70	25	Flange	L=230	10 L=220	15 L=220	20 L=220			
	B									8 ~ 80	40	Thread	L=200	3/4 L=200	1 L=200	1 1/4 L=200			
	C									10 ~ 100	40	Flange	L=300	20 L=270	25 L=280	32 L=300			
	D									12 ~ 120	40	Thread	L=200	3/4 L=200	1 L=200	1 1/4 L=200			
	E									13 ~ 130	40	Flange	L=300	20 L=270	25 L=280	32 L=300			
	Z									Others		Thread							
											Consult factory for details								
Connection size										1				10mm (3/8")					
										2				15mm (1/2")					
										3				20mm (3/4")					
										4				25mm (1")					
										5				32mm (1 1/4")					
										6				40mm (1 1/2")					
Rating										R				Rc					
										N				NPT (Female)					
										A				JIS 10K FF					
										B				JIS 10K RF					
										C				ANSI 150Lb RF					
										D				JPI 150Lb RF					
										Z				Others					
Material										-1N			Material 1	O-ring NBR (std.)	Refer to MATERIAL				
										-2N			Material 2						
										-3N			Material 3						
										-1F			Material 1	O-ring FPM (Special)					
										-2F			Material 2						
										-3F			Material 3						
										-ZZ			Others	Consult factory for details					
										Flow direction									
6				Left to Right															
7				Right to Left															
8				Top to Bottom															
Alarm function										0				No alarm contact					
										1				High alarm (High CLOSE)					
										2				High alarm (High OPEN)					
										3				Low alarm (Low CLOSE)					
										4				Low alarm (Low OPEN)					
Version										-A				Version mark					
Option*										/ DEG				Non oil treatment					
										/ EXn				IS relay (Code "n" indicates the number of contacts) n=1 (for 1 contact), n=2 (for 2 contacts), n=3 (for 3 contacts)					
										/ RED				Relay driver (RD-1000)					
										/ MnR			Magnet strainer (Rc)			n=1: Size 10mm (3/8")			
										/ MnN			Magnet strainer (NPT)			n=2: Size 15mm (1/2")			
										/ MnA			Magnet strainer (JIS 10K FF)			n=3: Size 20mm (3/4")			
										/ MnB			Magnet strainer (JIS 10K RF)			n=4: Size 25mm (1")			
										/ MnC			Magnet strainer (ANSI 150Lb RF)			n=5: Size 32mm (1 1/4")			
/ MnD			Magnet strainer (JPI 150Lb RF)			n=6: Size 40mm (1 1/2")													
Special										(Blank)				Not provided					
										/ Z				Provided					

□ Pressure drop table (Approx.)

Flow rate (L/min)	P.D. (kPa)	Size
1	10	15mm (1/2")
2	10	
5	25	
10	26	
15	19	20mm (3/4")
20	25	
30	25	
50	39	25mm (1")
60	46	
70	43	
80	32	40mm (1 1/2")
100	42	
120	56	
130	68	

Note) Insert "/" between each code when the plural codes are selected.

Code example : Flow range 5 to 50L/min, Size 25mm, Rating JIS10K FF, Material 2 (O-ring NBR),
Flow direction: Left to Right, Low alarm CLOSE, Magnet strainer 25mm JIS10K FF,
IS relay for 2 contacts, "FA484A-2N63-A/M4A/EX2"

OPTIONAL UNIT

□ Relay driver (RD-1000)

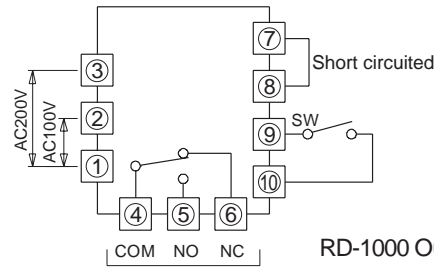
The contact output of FLOW MONITOR is reed switch contact. In case the contact capacity is not sufficient for the operation, use RD-1000 type RELAY DRIVER for capacity increment. (Separate TECHNICAL GUIDANCE for RD-1000 RELAY DRIVER is available on request.

SPECIFICATIONS (RD-1000)

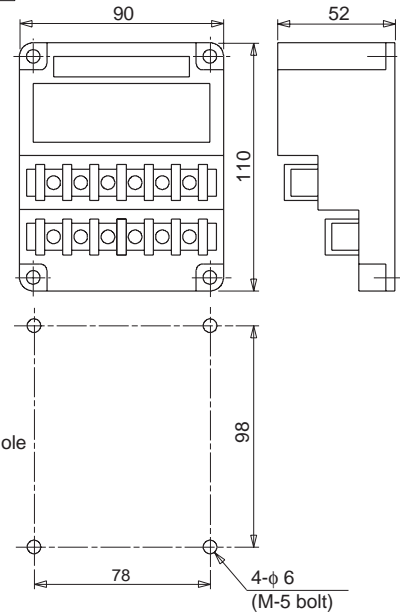
Power supply	AC100V or AC200V±10%, 50 / 60Hz
Ambient Temp.	-10 to 50°C
Max. supply voltage	DC12V (Terminal 7-8 or 9-10)
Max. supply current	DC3mA (Terminal 7-8 or 9-10)
Max. contact voltage	AC250V, DC125V (Terminal 4-5 or 4-6)
Max. contact current	5A (Terminal 4-5 or 4-6)
Max. value of switch capacity	• AC1100VA (Load resistance) • DC120W (Load resistance)
Insulation resistance	100MΩ at DC 500V mega
Withstand voltage	AC1500V (1 min.)
Power consumption	Less than 2VA

Switch action (Terminal 9-10)	Relay action	
	NO (Terminal 4-5)	NC (Terminal 4-6)
ON	ON	OFF
OFF	OFF	ON

□ WIRING



RD-1000 Outline drawing



□ INTRINSICALLY SAFE RELAY (IBRC6000)

Intrinsically safe relay is to be inserted into the contact loop of FA4000 FLOW MONITOR.

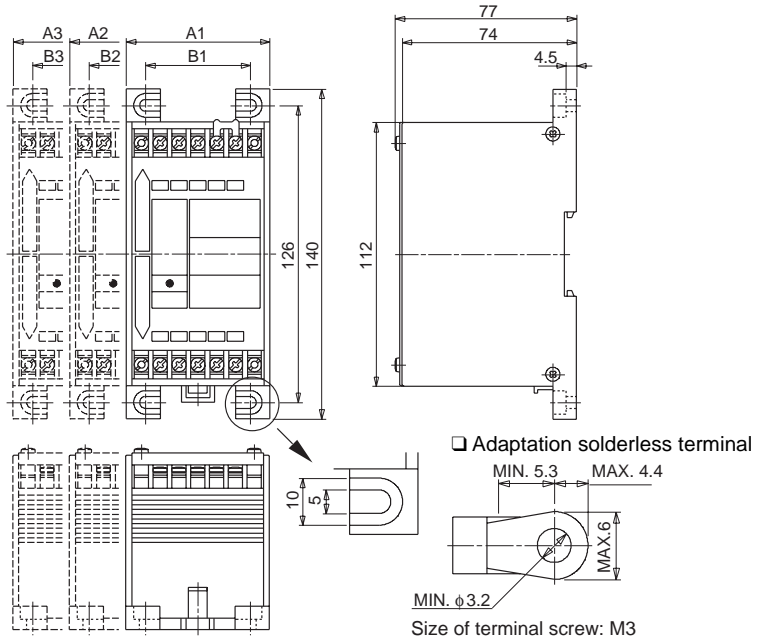
We can supply IS relay on request.

Standard specification

Construction	Intrinsically safe
Classification	3nG5
Max. voltage for IS circuit	DC 16V
Max. current in short circuit	DC 14mA
Location	To be in safe area
Relay output (Resistance load)	AC110V, DC24V/5A AC220V/2.5A
Insulation resistance	100MΩ at DC500V mega
Withstand voltage	AC1500V (1 min.)
Power consumption (1 point use)	2.0VA/1.4VA (50/60Hz)
Power consumption (2 points use)	2.5VA/1.8VA (50/60Hz)
Power consumption (3 points use)	3.1VA/2.3VA (50/60Hz)

Model code	Description
IBRC 6 0 □ 1 R	Model
01	1 point use (A1=61, B1=44.5)
02	2 points use (A2=76, B2=59.5)
03	3 points use (A3=91.5, B3=75)
Power supply	1 AC100/110V ± 10%, 50/60Hz
Output	R Relay output

IBRC6000 Outline drawing



* Specification subject to change without notice

TOKYO KEISO CO., LTD.

Head Office : Shiba Toho Building, 1-7-24 Shibakoen, Minato-ku, Tokyo 105-8558
 Tel : 03-3431-1625 (KEY) ; Fax : 03-3433-4922
 e-mail : overseas.sales@tokyokeiso.co.jp ; URL : http://www.tokyokeiso.co.jp

