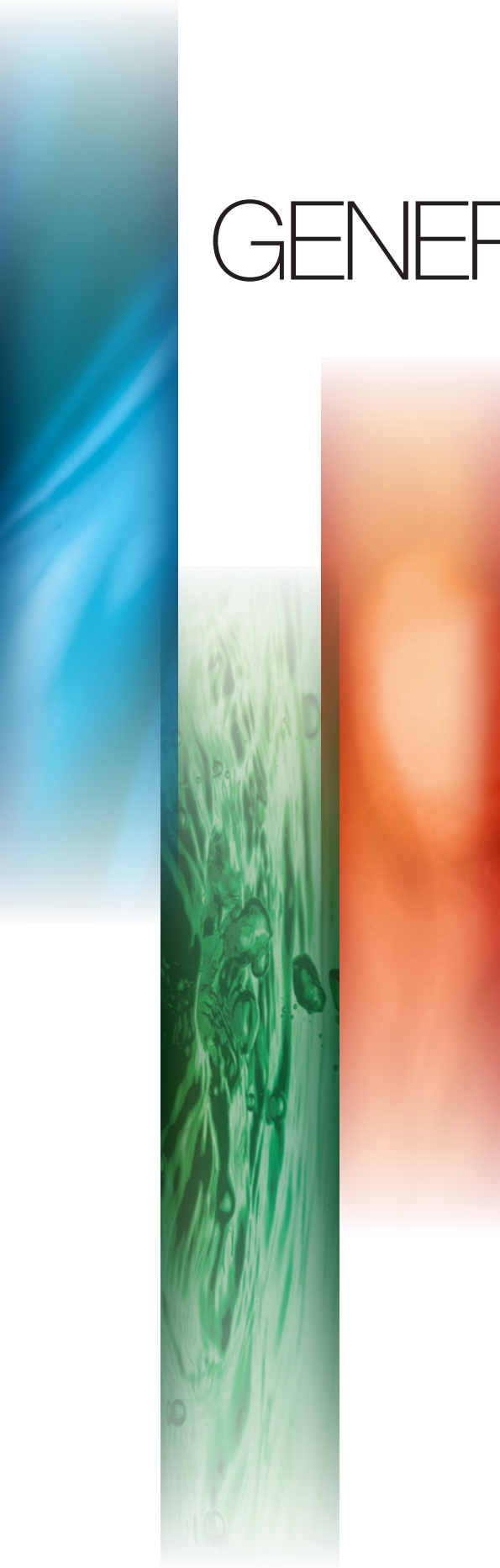




GENERAL GUIDANCE

7-2th Edition

Flowmeters and Levelmeters

Contents

FLOW MEASUREMENT AND CONTROL INSTRUMENTS

Metal Tube Variable Area Flowmeter	1
Direct Reading Type Flowmeter	2
Sanitary Flowmeter	3
Purgemeter	4
Flow Switch / Flow Monitor	5
Flow Switch (for process use)	5
Purge Set	6
Differential Pressure Flowmeter	7
Ultrasonic Flowmeter (for built-in use)	8
Flow Controller (for built-in use)	9
Ultrasonic Flowmeter (for process use)	10
Vortex Flow Sensor	11
Turbine Flowmeter	11
Thermal Flowmeter	12
Thermal Mass Flowmeter	13
Thermal Mass Flow Controller	15
Constant Flow Valve	15
Pitot Tube Flowmeter (for Air conditioning application)	16
Flapper-type Flowmeter	16
Sight Glass	16
MAGMAX [®] Electromagnetic Flowmeter	17
SWIRLMAX [®] Vortex Flowmeter	18
MASSMAX [®] Coriolis Mass Flowmeter	19
Flowmeter for Filling Machines	19
Single-Use Flowmeters	20
Flow Measurement System for Automobile Bench Test	20
Custom-made Product	21
Nominal flow rate of variable area flowmeters	22

The following symbols are applicable to flow measurement and control instruments.

Applicable fluids



: For liquid measurement



: For steam measurement



: For gas measurement

Explosion-proof

Ex d : Flameproof types available

Ex i : Intrinsically safe types available

Contact us for instruments for certified high-pressure gas equipment.

LEVEL MEASUREMENT AND CONTROL INSTRUMENTS

Float Type Level Meter	23
Displacer Type Level Meter	25
Microwave Level Meter	25
Micropulse Level Meter	26
Ultrasonic Level Meter	26
Purge Type Level Meter	26
Level Switch	27
Peripheral Instruments for Tank Gauging System	28
MICROCELL Weight Measurement System	29
Oil Leak Detector	29
Level Gauge for LNG Tanks	29
Marine Use Tank Gauging Systems	30

The following symbols are applicable to level measurement and control instruments.

Explosion-proof

Ex d : Flameproof types available **Ex i** : Intrinsically safe types available

Contact us for instruments for bonded tanks and high-pressure applications.

RELATED INSTRUMENTS

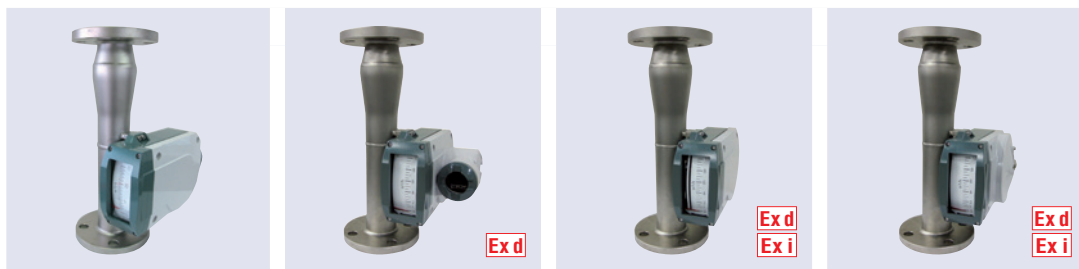
Differential Pressure Gauge	32
Receiver	32

Metal Tube Variable Area Flowmeter

Metal Tube Variable Area Flowmeter



AM7000

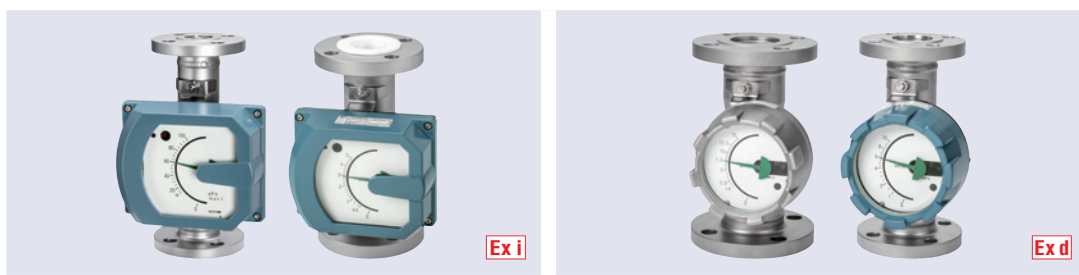


Model		AM7000/L	AM7000/T	AM7000/R/N/M	AM7000/E/H
Fluid		Liquid, Gas, Steam			
Function		·Local indication	·Local indication ·Current output ·Local totalizer ·Pulse output ·Alarm output	·Local indication ·Alarm output ·R: Reed switch N: Proximity switch M: Micro switch	·Local indication ·E: Current output H: Current output + HART communication
Measuring range (water)	Min.	0.01 to 0.1 m³/h			
	Max.	20 to 200 m³/h			
Measuring range (air)	Min.	0.3 to 3 m³/h (nor)			
	Max.	480 to 4800m³/h (nor)			
Process connection		Flange: 15 mm to 150 mm (1/2" to 6")			
Standard material		SUS304, SUS316, SUS316L			
Available lining material		Rubber, Fluorocarbon resin, PVC, Glass			

Compact Type Metal Tube Variable Area Flowmeter (250 mm unified installation length)



NLZ

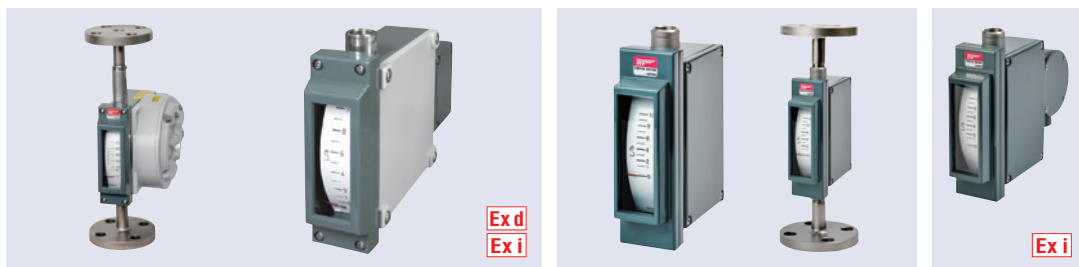


Model	NLZ1000	NLZ2000
Fluid	Liquid, Gas, Steam	
Function	·Local indication ·Current output ·Alarm output ·HART communication ·FOUNDATION Fieldbus	
Measuring range (water)	Min. Max.	0.04 to 0.4 m ³ /h 10 to 100 m ³ /h
Measuring range (air)	Min. Max.	1.2 to 12 m ³ /h (nor) 60 to 600 m ³ /h (nor)
Process connection	Flange: 15 mm to 100 mm (1/2" to 4") for Liquid 15 mm to 80 mm (1/2" to 3") for Gas	
Standard material	316L SS, PTFE Lining	
Installation length	250 mm	

Metal Tube Variable Area Flowmeter for Micro Flow Measurement

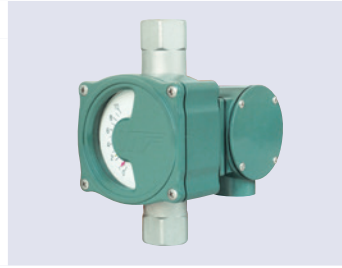


AM3000/M-900



Model		AM3000/E	AM3000/H	M-900	M-950
Fluid		Liquid, Gas			
Function		·Local indication ·Current output	·Local indication ·Current output ·HART communication	·Local indication	·Local indication ·Alarm output (Reed switch)
Measuring range (water)	Min.	0.4 to 2 L/h			
	Max.	60 to 600 L/h			
Measuring range (air)	Min.	12 to 60 L/h (nor)			
	Max.	1700 to 17000 L/h (nor)			
Process connection		·Rc 1/4 to 3/4 ·Flange: 10 mm (3/8") to 25 mm (1")			
Standard material		SUS304, SUS316, SUS316L			
Option material		Titanium, NW0276			

MA-900



Model		MA-900	MA-950	MA-920
Fluid		Liquid, Gas		
Function		·Local indication	·Local indication ·Alarm output (Hall IC)	·Local indication (Digital display) ·Current output
Measuring range (water)	Min.	0.1 to 0.5 L/h		0.6 to 3 L/h
	Max.	60 to 600L/h		60 to 600 L/h
Measuring range (air)	Min.	3 to 15 L/h (nor)		10 to 100 L/h (nor)
	Max.	2.2 to 22 m³/h (nor)		2.2 to 22 m³/h (nor)
Process connection		·Rc 1/4 to 3/4	·Flange: 10 mm (3/8") to 25 mm (1")	
Standard material		SUS304, SUS316		

Direct Reading Type Flowmeter

Glass Tube Variable Area Flowmeter

R series



Model	R-101-E		R-751-E	R-101	R-751-R / R-751
Fluid	Liquid, Gas		Liquid	Liquid, Gas	
Function	·Local indication		·Local indication ·Alarm output (reed switch)	·Local indication	·Local indication ·Alarm output (reed switch)
Measuring range (water)	Min.	25 to 250 L/h		0.9 to 9 L/h	7 to 70 L/h
	Max.	10 to 100 m³/h		5.2 to 52 m³/h	5 to 50 m³/h
Measuring range (air)	Min.	0.45 to 4.5 m³/h (nor)		15 to 150 L/h (nor)	0.3 to 3 m³/h (nor)
	Max.	110 to 1100 m³/h (nor)		100 to 1000 m³/h (nor)	16 to 160 m³/h (nor)
Process connection	Flange: 15 mm to 100 mm (1/2" to 4")		Flange: 25 mm to 100 mm (1" to 4")	Flange: 10 mm to 100 mm (3/8" to 4") for Liquid 10 mm to 50 mm (3/8" to 2") for Gas	
Standard material	SS400, SUS304, PVC, HT-PVC			FC200, SUS304, SUS316, SUS316L, PVC (10 mm to 20 mm)	

Resin Tube Variable Area Flowmeter

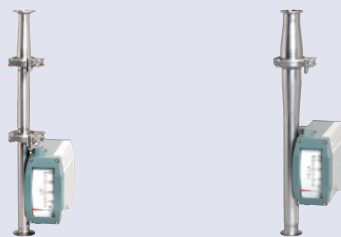
AC/AC-T



Model		AC (Small size)		AC (Medium size)		AC-T
Fluid		Liquid				
Function		·Local indication	·Local indication ·Alarm output (Reed switch)	·Local indication	·Local indication ·Alarm output (Reed switch)	·Local indication
Measuring range (water)	Min.	0.1 to 1 L/min	3 to 30 L/min	0.4 to 4 m³/h		2 to 20 L/min
	Max.	10 to 100 L/min	7 to 70 L/min	2 to 20 m³/h		5 to 50 L/min
Process connection		·Rc ·TS socket 1/2" to 1" ·Flange: 15 mm to 25 mm (1/2" to 1")		·Rc ·TS socket 1-1/2" to 2" ·Flange: 40 mm, 50 mm (1-1/2", 2")		Rc 1/2, 3/4
Standard material		Body: PVC / Tapered tube: Acrylic resin				PVDF/PFA

Metal Tube Variable Area Flowmeter for Sanitary Application

AM7000/SR


Ex d
Ex i

Model		AM7000/SR	AM7000/T/SR	AM7000/R/N/M/SR	AM7000/E/H/SR
Fluid		Liquid			
Function		·Local indication	·Local indication ·Current output ·Local totalizer ·Pulse output ·Alarm output	·Local indication ·Alarm output ·R: Reed switch N: Proximity switch M: Micro switch	·Local indication ·E: Current output H: Current output + HART communication
Measuring range (water)	Min.	0.01 to 0.1 m³/h			
	Max.	7 to 70 m³/h			
Process connection		1S to 4.5S			
Standard material		SUS304, SUS316, SUS316L			

Glass Tube Variable Area Flowmeter for Sanitary Application

R-101-SR



Model	R-101-SR	R-101-SRE
Fluid	Liquid	
Function	·Local indication	
Measuring range (water)	Min.	0.025 to 0.25 m ³ /h
	Max.	760 to 7600 L/h
Process connection	1S to 2.5S	1S to 3S
Standard material	SUS304	
Optional material	SUS316, SUS316L	

Electromagnetic Flowmeter for Sanitary Application

MAGMAX®
6000

Model	EGM6300C
Fluid	Conductive liquids
Function	·Local indication ·Current output ·Local totalizer ·Pulse output
Measuring range (water)	Min. 0 to 0.6 m ³ /h Max. 0 to 300 m ³ /h
Process connection	1S to 4S
Standard material	PFA / Hastelloy® C
Certification	EHEDG / 3A

P series



Model	P-100		P-200	P-400	P-510
Fluid	Liquid, Gas				
Function	·Local indication ·Alarm output		·Local indication ·Alarm output	·Local indication	·Local indication ·Alarm output
Measuring range (water)	Min. Max.	5 to 50 mL/min 0.2 to 2 L/min			0.1 to 1 L/min 3 to 30 L/min
Measuring range (air)	Min. Max.	0.5 to 5 mL/min (nor) 5 to 50 L/min (nor)	5 to 50 mL/min (nor) 6 to 60 L/min (nor)	80 to 800 mL/min (nor) 6 to 60 L/min (nor)	2.5 to 25 L/min (nor) 60 to 600 L/min (nor)
Process connection	Rc 1/8, Rc 1/4				Rc 3/8
Standard material	SUS304/SUS316				SCS14/SUS304
Installation length	115 mm	200 mm	200 mm	200 mm	200 mm
Alarm	·UL-approved reed switch ·Optical alarm unit			–	·UL-approved reed switch ·Optical alarm unit

P series



Model	P-530		P-810	P-820	P-830
Fluid	Liquid, Gas		Gas, Liquid (equivalent to water)		Liquid (equivalent to water)
Function	·Local indication ·Alarm output		·Local indication ·Alarm output	·Local indication ·Alarm output	·Local indication ·Alarm output
Measuring range (water)	Min. Max.	0.2 to 2 L/min 1 to 10 L/min	5 to 50 mL/min 0.2 to 2 L/min	5 to 50 mL/min 0.2 to 2 L/min	0.1 to 1 L/min 1.5 to 7 L/min
Measuring range (air)	Min. Max.	10 to 50 L/min (nor) 50 to 250 L/min (nor)	5 to 50 mL/min (nor) 6 to 60 L/min (nor)	0.5 to 5 mL/min (nor) 6 to 60 L/min (nor)	– –
Process connection	Rc 3/8		Rc 1/4, 1/4" SW, 1/4" VCR		Rc 3/8, 3/8" SW
Standard material	SCS14/SUS304		SCS14/SUS316	SCS14/SUS316	SCS14/SUS304
Installation length	150 mm		224 mm	115 · 224 mm	76 mm
Alarm	·UL-approved reed switch		·Optical alarm unit	·UL-approved reed switch ·Optical alarm unit	·UL-approved reed switch

P series



P series (for micro flow rates)



Model	P-900		P-850	Model	P-880	
Fluid	Gas, Liquid (equivalent to water)		Liquid, Gas	Fluid	Gas	
Function	·Local indication		·Local indication	Function	·Local indication	
Measuring range (water)	Min. Max.	5 to 50 mL/min 0.25 to 2.5 L/min	5 to 50 mL/min 0.1 to 1 L/min	Measuring range (water)	Min. Max.	– –
Measuring range (air)	Min. Max.	80 to 800 mL/min (nor) 6 to 60 L/min (nor)	20 to 200 mL/min (nor) 2 to 20 L/min (nor)	Measuring range (air)	Min. Max.	0.15 to 1.5 mL/min (nor) 6 to 60 L/min (nor)
Process connection	Rc 1/4, 1/4NPT		Rc 1/8	Process connection	Rc 1/4, 1/4" SW, 1/4" VCR	
Standard material	SUS304		SCS14/SUS304	Standard material	SCS14/SUS316	
Installation length	114 · 224 mm		80 mm	Installation length	115-130-145 mm	
Alarm	–		–	Alarm	–	

P series (Resin)



Model		P-060	P-620	XP	P-520
Fluid		Liquid, Gas	Liquid	Liquid, Gas	Liquid
Function		·Local indication ·Alarm output	·Local indication ·Alarm output	·Local indication ·Alarm output	·Local indication ·Alarm output
Measuring range (water)	Min.	10 to 100 mL/min	0.4 to 1.2 L/min	0.02 to 0.1 L/min	1 to 10 L/min
	Max.	1 to 10 L/min	1 to 10 L/min	0.2 to 1 L/min	12 to 60 L/min
Measuring range (air)	Min.	0.2 to 2 L/min (nor)	–	0.1 to 1 L/min (nor)	–
	Max.	30 to 300 L/min (nor)	–	2 to 20 L/min (nor)	–
Process connection		Rc 1/8 to Rc 3/8	Rc 3/8, 3/8" SW, 3/8NPT	Rc 1/4	Rc 1/2
Standard material		Acryl resin	Acryl resin	Polyacetal	PVC, PTFE
Installation length		84 mm	76 mm	80 mm	150 mm
Alarm		·UL-approved reed switch	·UL-approved reed switch	·Optical alarm unit	·UL-approved reed switch ·Optical alarm unit

Note: Depending on specifications, Model P-520-L (with a fluorocarbon resin valve) falls in "Valves or components thereof" listed in (ii) -7 of row 3 of Appended Table 1 of the Export Trade Control Order. Consult us for details.

P-700 series (Fluorocarbon resin)

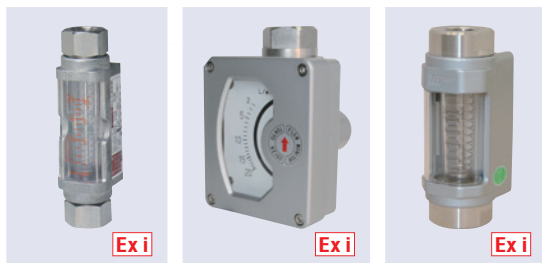


Model		P-771	P-772	P-773	P-710
Fluid			Liquid		Liquid, Gas
Function		·Local indication ·Alarm output	·Local indication ·Alarm output	·Local indication ·Alarm output	·Local indication ·Alarm output
Measuring range (water)	Min.	3 to 15 mL/min	0.06 to 0.6 L/min	0.1 to 1 L/min	3 to 30 mL/min
	Max.	0.2 to 2 L/min	4.5 to 45 L/min	1 to 10 L/min	0.4 to 2 L/min
Measuring range (air)	Min.	–	–	–	50 to 500 mL/min (nor)
	Max.	–	–	–	2 to 20 L/min (nor)
Process connection		Rc 1/8, Tube end	Rc, NPT (1/2 · 3/4), Tube end	Rc, NPT (1/4 · 3/8), Tube end	Rc 1/8, Fitting
Standard material			PFA		ETFE
Installation length		80 mm	150 mm	115 mm	79 mm
Alarm		·Optical alarm unit	·UL-approved reed switch ·Optical alarm unit	·UL-approved reed switch ·Optical alarm unit	·Optical alarm unit

Note: Depending on specifications, Model P-772-U (with a valve) falls in "Valves or components thereof" listed in (ii) -7 of row 3 of Appended Table 1 of the Export Trade Control Order. Consult us for details.

Flow Switch / Flow Monitor

FA series



Model		FA-3000	FA4000	FA-6000
Fluid			Liquid (equivalent to water)	
Function		·Local indication ·Alarm output	·Local indication ·Alarm output	·Local indication ·Alarm output
Measuring range (water)	Min.	0.3 to 3 L/min	0.1 to 1 L/min	3 to 30 L/min
	Max.	5 to 50 L/min	13 to 130 L/min	10 to 100 L/min
Process connection		Rc 3/8 to Rc 1	Rc 1/2 to Rc 1-1/2	Rc 1/2 to Rc 1
Standard material	Tapered tube	Acryl resin	SUS316	Acryl resin
	Body	SUS304	SCS14	SCS14
Fluid temperature		0 to 60°C	0 to 100°C	0 to 60°C

Flow Switch (for process use)

F-740



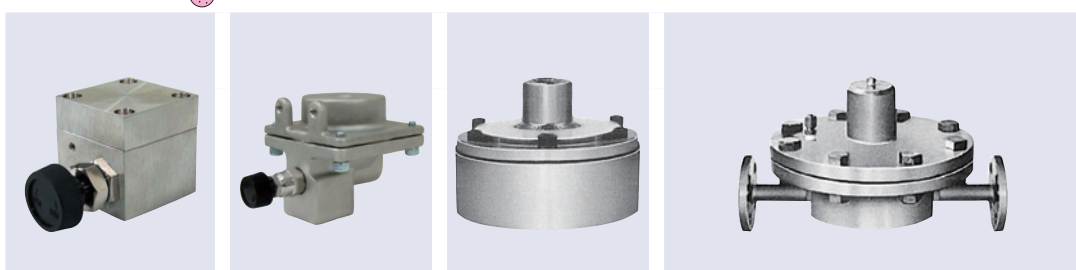
Model		F-740
Fluid		Liquid (Viscosity: up to 5 mPa · s)
Function		·Alarm output
Alarm setting range (water)	Min.	Low alarm 0.1 to 2 m³/h High alarm 0.13 to 2 m³/h
	Max.	Low alarm 5 to 70 m³/h High alarm 6.5 to 70 m³/h
Process connection		Flange 15 mm to 100 mm
Standard material		FC200, SCS13, SCS14

CP series Purege Set



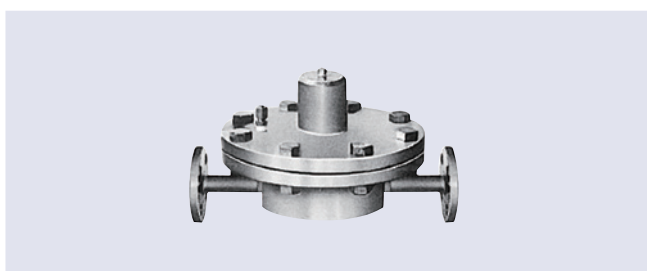
Model	Primary press. control	CP-11-100, 200, 400	CP-21-100, 200, 400	CP-31-500	CP-41-500
	Secondary press. control	CP-12-100, 200, 400	CP-22-100, 200, 400	CP-32-500	CP-42-500
Fluid		Gas		Liquid, Gas	
Flow control range (water)	Min.	–	5 to 50 mL/min	0.2 to 2 L/min	0.5 to 5 L/min
	Max.	–	0.2 to 2 L/min	0.5 to 5 L/min	1 to 10 L/min
Flow control range (air)	Min.	10 to 100 mL/min (nor)	0.1 to 1 L/min (nor)	5 to 50 L/min (nor)	15 to 150 L/min (nor)
	Max.	0.3 to 3 L/min (nor)	5 to 50 L/min (nor)	15 to 150 L/min (nor)	30 to 300 L/min (nor)
Process connection		Rc 1/8	Rc 1/4	Rc 3/8	Rc 1/2
Standard material		SUS304			
Controllable DP range		C-11: 0.03 to 0.3 MPa C-12: 0.05 to 0.3 MPa	0.06 to 0.4 MPa	0.1 to 0.5 MPa	0.1 to 0.6 MPa

C series Constant flow valve



Model	Primary press. control	C-11	C-21	C-31	C-41	C-51
	Secondary press. control	C-12	C-22	C-32	C-42	C-52
Fluid		Gas		Liquid, Gas		
Flow control range (water)	Min.	–	0.9 to 9 L/h	12 to 120 L/h	30 to 300 L/h	70 to 700 L/h
	Max.	–	12 to 120 L/h	30 to 300 L/h	70 to 700 L/h	120 to 1200 L/h
Flow control range (air)	Min.	10 to 100 mL/min (nor)	0.015 to 0.15 m³/h (nor)	0.36 to 3.6 m³/h (nor)	0.9 to 9 m³/h (nor)	2.1 to 21 m³/h (nor)
	Max.	0.3 to 3 L/min (nor)	0.36 to 3.6 m³/h (nor)	0.9 to 9 m³/h (nor)	2.1 to 21 m³/h (nor)	3.6 to 36 m³/h (nor)
Process connection		Rc 1/8	Rc 1/4	Rc 3/8 - Flange 15 mm (1/2")	Rc 1/2 - Flange 15 mm (1/2")	Flange 20 mm (3/4")
Standard material		SUS304	SCS14	SUS304		
Controllable DP range		0.03 to 0.3 MPa	0.06 to 0.4 MPa	0.1 to 0.5 MPa	0.1 to 0.6 MPa	

C series Constant flow valve



Model	Primary press. control	C-61	C-71	C-81
	Secondary press. control	C-62	C-72	C-82
Fluid		Liquid, Gas		
Flow control range (water)	Min.	120 to 1200 L/h	180 to 1800 L/h	300 to 3000 L/h
	Max.	180 to 1800 L/h	300 to 3000 L/h	1000 to 10000 L/h
Flow control range (air)	Min.	3.6 to 36 m³/h (nor)	5.4 to 54 m³/h (nor)	9 to 90 m³/h (nor)
	Max.	5.4 to 54 m³/h (nor)	9 to 90 m³/h (nor)	23 to 230 m³/h (nor)
Process connection		Flange 20 mm (3/4")	Flange 25 mm (1")	Flange 50 mm (2")
Standard material		SUS304		
Controllable DP range		0.1 to 0.6 MPa		

CR/CAM series Purege Set

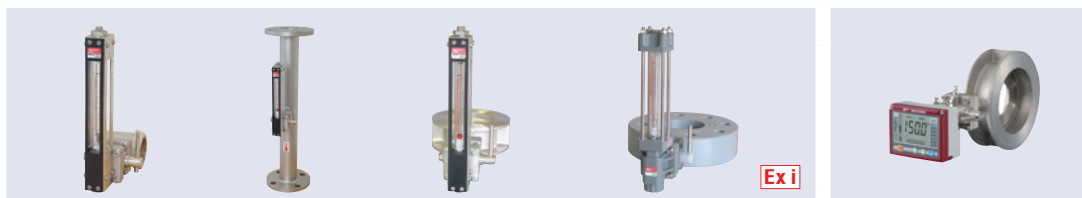


Differential Pressure Flowmeter

ORIFLOMETER®



O/HDT series



Model		O-180	O-680	O-780	HDT1000
Fluid		Liquid (Viscosity: up to 3 mPa·s), Gas			
Function		·Local indication	·Local indication ·Alarm output (Optical alarm unit)	·Local indication ·Alarm output (Reed switch)	·Local indication ·Alarm output ·Current output ·Pulse output ·Battery-powered
Standard DP (Liquid)		15 kPa		20 kPa	—
Measuring range (water)	Min.	0.05 to 0.25 m³/h			0.023 to 0.23 m³/h
	Max.	300 to 1500 m³/h			106 to 1060 m³/h
Standard DP (Gas)		5 kPa		20 kPa	—
Measuring range (air)	Min.	0.7 to 3.5 m³/h (nor)			0.34 to 3.4m³/h (nor)
	Max.	4600 to 23000 m³/h (nor)			1720 to 17200 m³/h (nor)
Process connection		·Rc 3/8 to Rc 4 ·Flange / Wafer 10 mm to 500 mm (3/8" to 20")			·Rc 1/2 to Rc 4 ·Flange / Wafer 15 mm to 300 mm (1/2" to 12")
Standard material	Measuring pipe	SGP, SUS304, SUS316, PVC, HT-PVC			SUS304
	Indicator	SCS14, PVC, HT-PVC			

O/HDT series

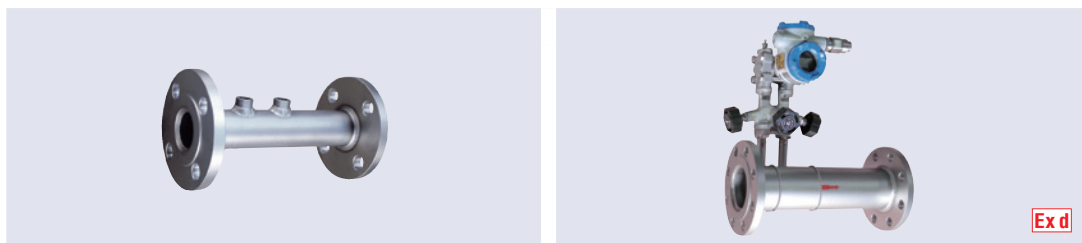


Model		O-100	O3000	O7000
Fluid		Liquid, Gas		
Function		·Local indication ·Alarm output	·Local indication ·Current output ·HART communication	·Local indication ·Alarm output ·Current output ·Pulse output
Standard DP (Liquid)		30 kPa		60 kPa
Measuring range (water)	Min.	0.5 to 2.5 m³/h	0.054 to 0.27 m³/h	0.8 to 4 m³/h
	Max.	400 to 2000 m³/h	164 to 820 m³/h	600 to 3000 m³/h
Standard DP (Gas)		10 kPa	40 kPa	60 kPa
Measuring range (air)	Min.	6.8 to 34 m³/h (nor)	1.1 to 5.5 m³/h (nor)	18 to 90 m³/h (nor)
	Max.	6600 to 33000 m³/h (nor)	4800 to 24000 m³/h (nor)	14400 to 72000 m³/h (nor)
Process connection		D-D/2 tap: 100 mm to 500 mm (4" to 20") Corner tap, Flange tap: 50 mm to 500 mm (2" to 20") Vena contracta tap: 200 mm to 500 mm (8" to 20")	- Rc 1/2 to 4 - Flange/Wafer: 15 mm to 300 mm	D-D/2 tap: 100 mm to 500 mm (4" to 20") Corner tap, Flange tap: 50 mm to 500 mm (2" to 20") Vena contracta tap: 200 mm to 500 mm (8" to 20")
Standard material	Measuring pipe	SS400, SUS304, SUS316	SS400, SUS304, SUS316	SS400, SUS304, SUS316
	Indicator		SUS304, SUS316	

V-Cone® Flowmeter



VC/VD

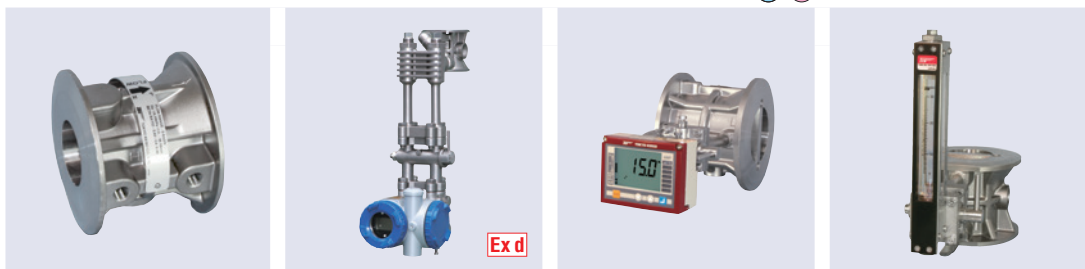


Model	VC		VD
Fluid	·Steam, Liquid, Gas		
Function	Differential pressure port: Rc 1/2 or Rc 1/4		·Local indication ·Current output
Measuring range (water)	Min.	0.4 to 3.47 m³/h	
	Max.	112 to 1245 m³/h	
Measuring range (air)	Min.	7 to 71 m³/h (nor)	
	Max.	300 to 32859 m³/h (nor)	
Measuring range (Saturated steam)	Min.	6 to 65 kg/h	
	Max.	2600 to 28315 kg/h	
Process connection	Flange 15 mm to 400 mm (1/2" to 16")		Flange 15 mm to 300 mm (1/2" to 12")
Standard material	SUS304		

Wafer-Cone® Flowmeter



V series Wafer type



Model		VH	VT	VDT	VTW
Fluid		Liquid, Gas, Saturated steam		Liquid, Gas	Liquid
Function		Differential pressure port: Rc 1/4 or Rc 1/8	·Local indication ·Current output	·Local indication ·Current output ·Battery-powered	·Local indication
Measuring range (water)	Min.	-	0.4 to 5.5 1m³/h		0.26 to 1.3 m³/h
	Max.		9 to 119.73 m³/h		18 to 90 m³/h
Measuring range (air)	Min.		6 to 77 m³/h (nor)		-
	Max.		120 to 1587 m³/h (nor)	750 to 7500 m³/h (nor)	-
Measuring range (Saturated steam)	Min.		8 to 103 kg/h	-	-
	Max.		170 to 2421 kg/h	-	-
Process connection		Wafer: 25 mm to 100 mm (1" to 4")			
Standard material		SCS14A			

Ultrasonic Flowmeter (for built-in use)

Clamp-on type



GST/SFC011GS

UCL/SFC010C/
SFC011C

Model		GST	SFC011GS	Model		UCL	SFC010C (1 ch)	SFC011C (6 ch)
Power supply		24 V DC		Power supply		24 V DC		
Fluid		Water		Fluid		Water		
Function		·Flow rate indication ·Current output ·Pulse output		Function		·Flow rate indication ·Current output ·Pulse output		
Measuring range (water)	Min.	0 to 0.5 L/min		Measuring range (water)	Min.	0 to 3 L/min		
	Max.	0 to 2 L/min			Max.	0 to 80 L/min		
Process connection		1/8, 1/4, 4 mm, 5 mm, 6 mm		Process connection		6 mm, 8 mm, 10 mm, 6.35 mm, 9.53 mm, 12.70 mm, 19.05 mm, 25.40 mm		
Standard material		PPS GF		Standard material		PPS, PP		

Integrated Type



UF/UCF/UCM®



Model	UF	UCF006	UCM-04A/06A
Power supply	24 V DC		
Fluid	Water		
Function	·Flow rate indication ·Current output ·Pulse output	·Analog output ·Pulse output	·Flow rate indication ·Analog output
Measuring range (water)	Min. 0 to 20 L/min Max. 0 to 150 L/min	0 to 3 L/min 0 to 8 L/min	0 to 0.2 L/min 0 to 8 L/min
Process connection	Tube end: 1/2", 3/4", 1"	Tube end: 3/8"	Tube end: 1/4", 3/8"
Standard material	PFA		

Detector (Sensor)



UCUF® series



Model		UCUF-E/SE	UCUF-K	UCUF-02M	UCUF-04MT	UCUF-SB
Fluid		Liquid				
Measuring range (water)	Min.	0 to 50 mL/min		0 to 10 mL/min	–	0 to 50 mL/min
	Max.	0 to 8 L/min	0 to 80 L/min	0 to 100 mL/min	0 to 2 L/min	0 to 3000 mL/min
Process connection		Tube end: 1/4, 3/8"	Tube end: 3/8" to 1"	Tube end: 1/4"		Tube end : 6 mm, 1/4
Standard material		PFA				

*Max. fluid temperature for UCUF-04MT is 180°C.

Converter

SFC series

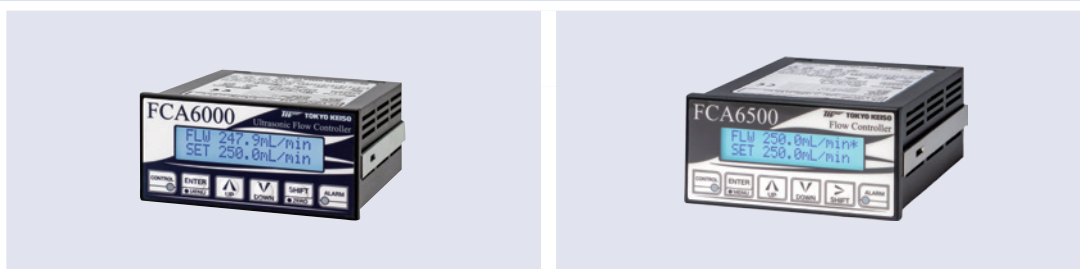


Model		SFC4000	SFC3000	SFC-010L	SFC-010T	SFC011SB
Power supply		24 V DC				
Output	Flow rate	-4 to 20 mA DC -1 to 5 V DC	4 to 20 mA DC	-4 to 20 mA DC -0 to 20 mA DC	-4 to 20 mA DC -1 to 5 V DC	-4 to 40 mA DC -1 to 5 V DC
	Pulse	Open collector: 0 to 1000 Hz max.				
	Alarm	2 points	2 points			
Communication		RS485 (Protocol: MODBUS)				
Applicable Detector (Sensor)		UCUF-K, UCUF-M, UCUF-E	UCUF-K, UCUF-M, UCUF-E	UCUF-02M	UCUF-04MT	UCUF-SB

Flow Controller (for built-in use)



Controller

 FCA6000
FCA6500


Model	FCA6000		FCA6500
Compatible sensor	For UCUF detector only		Various sensors
Power supply	24 V DC		
Function	·Flow rate control ·Flow rate display ·Flow rate output ·Alarm output		
Input signal	Sensor	UCUF sensor signal	-4 to 20 mA DC -0 to 10 V DC
	Target flow rate	-4 to 20 mA DC -1 to 5 V DC -0 to 10 V DC	–
	Control	No-voltage contact	
Output signal	Flow rate analog signal	-4 to 20 mA DC -0 to 10 V DC	-4 to 20 mA DC -1 to 5 V DC -0 to 10 V DC
	Flow rate pulse signal	Transistor contacts	–
	Alarm	Transistor contacts	
	Valve	Motor drive signal	

Control Valve

FCV series



Model		FCV-3000	FCV-1000S
Fluid		Liquid	
Flow control range (water)	Min.	2.5 to 25 mL/min	0.2 to 2 L/min
	Max.	200 to 2000 mL/min	1 to 10 L/min
Process connection		Tube end: ø6.35 × ø4.35	Tube end: ø9.53 × ø6.35 Tube end: ø12.7 × ø9.53
Standard material		PTFE, PFA	PCTFE, PTFE, PFA

All-in-one type

CLFC® series Controller



Model		CLFC1000	CLFC300
Power supply		24 V DC	
Fluid		Liquid	
Flow control range (water)	Min.	2.5 to 25 mL/min	
	Max.	400 to 4000 mL/min	200 to 2000 mL/min
Body size (in mm) (excluding mounting plate and joints)		W28/D148/H111	W65.4/D203/H109.3
Process connection		SUPER300 Type PILLAR FITTING etc.	
Standard material		PFA, PTFE	
Setting input		4 to 20 mA DC or 0 to 10 V DC	
MV (flow rate) output		4 to 20 mA DC or 0 to 10 V DC	

Ultrasonic Flowmeter (for process use)

Clamp-on Type

UL300
UL6000
series

Model		General purpose · for small pipe sizes	General purpose · for small and medium pipe sizes	High-performance · for small to large pipe sizes
Fluid		Liquid	Liquid	Liquid
Function		·Flow rate indication ·Totalizer ·Current output ·Pulse output ·Status output	·Flow rate indication ·Totalizer ·Current output ·Pulse output ·Status output ·RS485 (optional)	·Flow rate indication ·Totalizer ·Bar graph ·Current output (HART) ·Pulse output ·Status output
Measuring range (flow velocity)	Min.	0 to 0.3 m/s	0 to 0.3 m/s	0 to 0.5m/s
	Max.	0 to 10 m/s	0 to 10 m/s	0 to 20m/s
Measurable pipe size		25 mm to 400 mm (1" to 16")	25 mm to 1000 mm (1" to 40")	15 mm to 4000 mm (1/2" to 160")
Pipe material		Metal, Resin	Metal, Resin, Polyethylene lining	

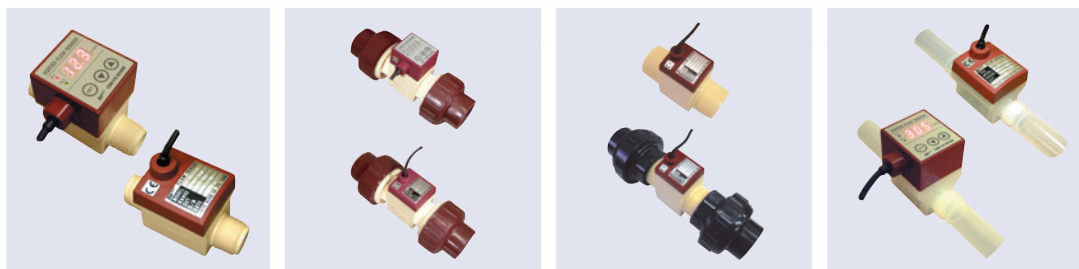
3-Beam In-line Type

SONICMAX®
UL3400

Model		UL3400
Fluid		Liquid
Function		·Flow rate indication ·Totalizer ·Current output ·Pulse output ·Status output
Measuring range (flow velocity)	Min.	0 to 0.3 m/s
	Max.	0 to 20 m/s
Process connection		Flange: 25 mm to 2000 mm (1" to 80")
Standard material		316L SS



VF series



Model		VF-2000		VF-2200	VF-2300	VF-3000
Fluid		Liquid (low viscosity)				
Type / Function		·Current output type ·Pulse output type ·Flow rate indication + Current/Alarm output type				
Measuring range (water)	Min.	0.5 to 4 L/min	10 to 100 L/min	–		0.3 to 2.5 L/min
	Max.	4 to 40 L/min	10 to 150 L/min	25 to 250 L/min		15 to 150 L/min
Process connection		R3/8 to 1/2	·TS socket DN25 (1") ·Rc 1 ·Flange 25 mm (1")	·R 1-1/4 ·Flange 32 mm (1-1/4")		Tube end: 3/8" to 1"
Standard material		PPS resin	PPS resin /PVC			New PFA

Turbine Flowmeter



Axial-flow Flowmeter

TW series



Model	TW-080/TW-090	
Fluid	Cooling water and a variety of fluids	
Function	·Voltage output ·Pulse output	
Measuring range (water)	Min.	Max.
	0.2 to 2 L/min	2 to 20 L/min
Process connection	Rc 1/4, 3/8	
Standard material	SCS14	

Mini-wheel / Mag-wheel / Manifold Mini-wheel Flowmeter

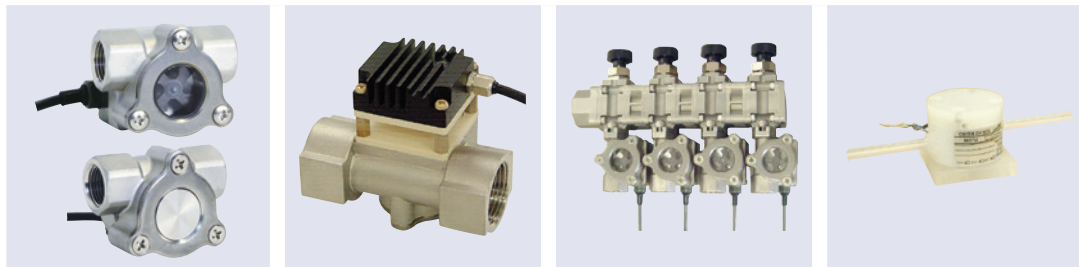
W series



Model		W1000		W-500	
Fluid		Cooling water and a variety of fluids			
Function		·Current output ·Voltage output ·Pulse output		·Local indication ·Current output ·Pulse output	
Measuring range (water)	Min.	0.3 to 1 L/min		0.7 to 3.5 m³/h	
	Max.	6 to 60 L/min		50 to 400 m³/h	
Process connection		Rc 1/4 to 3/4		·Rc 1/2 to 1 ·Flange 15 mm to 200 mm	
Standard material		P.P./ PVC/ PTFE		SUS304 SUS316/ PVC	

Mini-wheel / Mag-wheel / Manifold Mini-wheel Flowmeter

W series

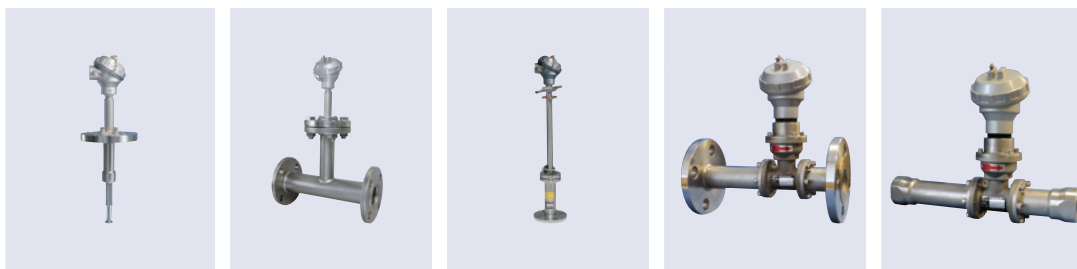


		Magnetic type			Optical type
Model		W-2000/2000N	W-3000	MU-1000	W-800
Fluid		Liquid		Cooling water	Liquid
Function		·Current output ·Pulse output	·Pulse output	·Current output ·Pulse output	·Pulse output
Measuring range (water)	Min.	0.5 to 3 L/min		0.6 to 3 L/min	0.04 to 0.2 L/min
	Max.	6 to 60 L/min		2 to 20 L/min	5 to 50 L/min
Process connection		Rc 3/8 to 3/4		Rc 3/8	Tube end Rc 1/4 to 3/4
Standard material		SCS14			PFA (PTFE)

* The W-2000 can handle a maximum flow rate of 10 to 100 L/min.

TH series

TH-Detector

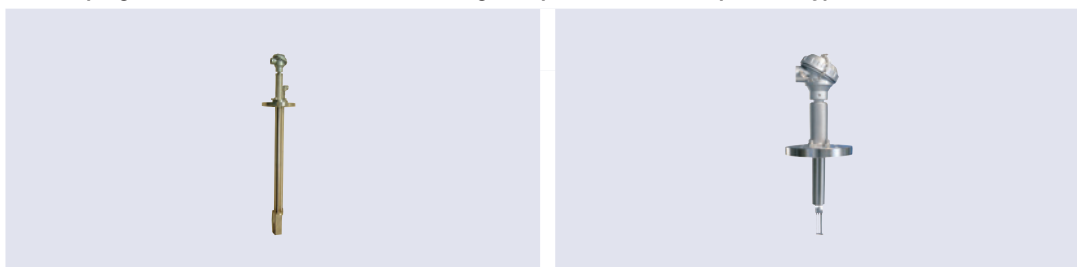


Model		Insertion type	Flange type	Insertion type (Variable length)	Small size	Built-in straightener type
Fluid		TH-1100	TH-1200	TH-1400	TH-1700	TH-1800
Measuring range (air)	Min.	0 to 45 m ³ /h (nor)	0 to 45 m ³ /h (nor)	0 to 45 m ³ /h (nor)	0 to 250 L/min (nor)	0 to 10 L/min (nor)
	Max.	0 to 680000 m ³ /h (nor)	0 to 7000 m ³ /h (nor)	0 to 680000 m ³ /h (nor)	0 to 14000 L/min (nor)	0 to 5800 L/min (nor)
Operating temperature	Standard type	80°C Max.				
	High-temp. type	180°C Max.				
Process connection / Process pipe size		Flange: 50 mm to 1500 mm (2" to 60")	Flange: 50 mm to 150 mm (2" to 6")	Flange: 50 mm to 1500 mm (2" to 60")	Flange: 15 mm to 50 mm (1/2" to 2")	Rc 3/8 to 1 Flange: 15 mm to 50 mm (1/2" to 2")
Standard material		SUS304, SUS316, SUS316L				

Built-in purge function

High temperature / Low temperature type

TH-Detector



Model		Insertion type (max. temp. 240°C)	Insertion type (max. temp. 550°C)	Insertion type	
Fluid		TH-1100-SP	TH-3200-SP	TH-3100	TH-3200
		Gas			
Measuring range (air)	Min.	0 to 120 m³/h (nor)	0 to 260 m³/h (nor)	0 to 80 m³/h (nor)	0 to 60 m³/h (nor)
	Max.	0 to 390000 m³/h (nor)		0 to 380000 m³/h (nor)	
Operating temperatur	Standard type	80°C Max.	550°C Max.	550°C Max.	
	High-temp. type	240°C Max.			
Process connection / Process pipe size		Flange: 50 mm to 1500 mm (2" to 60")		Flange: 80 mm to 1500 mm (3" to 60")	Flange: 65 mm to 1500 mm (2-1/2" to 60")
Standard material		SUS304, SUS316, SUS316L			

TRX-Converter



Model	TRX-600	THC100	THC200
Power supply	100, 110, 115, 200, 220, 240 VAC	·96 to 264 VAC ·24 V DC	96 to 264 VAC
Function	·Flow rate ·Totalizer ·Temperature ·Temp. compensation ·Purge control	·Flow rate ·Totalizer ·Temperature ·Temp. compensation	·Flow rate ·Totalizer ·Alarm contact output ·Bar graph indication ·Temperature / pressure compensation
Output	·Current output ·Pulse output (Photo MOS open collector) ·RS-485	·Current output ·Pulse output (Photo MOS open collector) ·Alarm contact output (Photo MOS open collector) ·RS-485	·Current output ·Alarm output ·Pulse output (open collector) ·RS-485
Cable length	50 m Max.	100 m Max.	
Housing	Waterproof (for outdoor use)	Panel mount (for indoor use)	Waterproof (for outdoor use)

SRT series

Compact & Separate type



Model	SRT1100	SRT1200	SRT1300	SRT1400
Fluid	Gas			
Function	·Local indication ·Analog output ·Pulse output ·Alarm output ·RS-485			
Measuring range (air)	Min. 0 to 60 m³/h (nor) Max. 0 to 890000 m³/h (nor)	0 to 40 m³/h (nor) 0 to 10000 m³/h (nor)	0 to 2.5 m³/h (nor) 0 to 300 m³/h (nor)	0 to 60 m³/h (nor) 0 to 310000 m³/h (nor)
Operating temperature	120°C Max.			
Process connection / Process pipe size	Flange: 50 mm to 1500 mm (2" to 60")	Flange: 40 mm to 150 mm (1-1/2" to 6")	·Rc 3/8 to 1 ·Flange: 10 mm to 25 mm (3/8" to 1")	Flange: 50 mm to 900 mm
Standard material	SUS316, SUS316L			

Thermal Mass Flowmeter

TF series
HM series

Model		TF-5000/TF-6000	EP-TF-5300	H-EP-TF-5300	HM1000	HM5000
Fluid		Gas			Gas	
Function		·Voltage output			·Voltage output	
Measuring range (air)	Min.	0 to 5 mL/min (nor)			0 to 5 mL/min (nor)	
	Max.	0 to 500 L/min (nor)			0 to 20 L/min (nor)	0 to 400 L/min (nor)
Process connection		Rc 1/4 to 1	Rc 1/4 to 3/4		1/4" SW	1/4" to 1/2" SW
Standard material		SUS316			SUS316	

TF series



		Small to Large flow	Compact type	High performance	Compact type	Indicator / valve built-in
Model		TF-1000	TF-900	TF-4000	TF-600	TF-600D/600V
Fluid		Gas	Air, N ₂ , O ₂	Air, N ₂ , O ₂	Air, N ₂	
Function		·Voltage output ·Current output	·Voltage output	·Local indication ·Totalizer ·Current output ·RS-485 ·Pulse output ·Alarm output	·Voltage output	·Local indication ·Voltage output ·Pulse output ·Alarm output ·RS-485
Measuring range (air)	Min.	0 to 2 L/min (nor)	0 to 10 L/min (nor)	0 to 2 L/min (nor)	0 to 20 L/min (nor)	0 to 5 L/min (nor)
	Max.	0 to 1000 L/min (nor)	0 to 100 L/min (nor)	0 to 1000 L/min (nor)	0 to 100 L/min (nor)	0 to 1000 L/min (nor)
Process connection		Rc 1/4 to 1	Rc 1/4	Rc 1/4 to 3/4	Rc 1/4	Rc 1/4 to 3/4
Standard material		SUS316	SCS14 Polyacetal	SCS14	SCS14, SUS316	

TF series



		Rotatable indicator type, for large flow rates	Flow rate, Totalizer, Alarm indication + output		For medium to large flow rate
Model		TF-4100	TF-2000T	TF-2261T	TF-1161/TF-1261
Fluid		Air, N ₂	Gas	Air, N ₂	Air, N ₂
Function		·Local indication ·Current output ·Voltage output ·Pulse output ·Alarm output ·RS-485	·Local indication ·Current output ·Pulse output ·Alarm output	·Local indication ·Current output ·Pulse output ·Alarm output	·Current output
Measuring range (air)	Min.	0 to 4000 L/min (nor)	0 to 2 L/min (nor)	0 to 80 m ³ /h (nor)	
	Max.	0 to 16000 L/min (nor)	0 to 750 m ³ /h (nor)	0 to 1500 m ³ /h (nor)	
Process connection		Rc 1 to 2	·Rc 1/4 to 2 ·Flange 15 mm to 80 mm	·Rc 1 to 2 ·Flange 25 mm to 80 mm	
Standard material		A6061-T6, SCS13	SUS316	SUS304, SUS316	

Converter for
TF series

Type	TM3000
Applicable instrument	·TF-900 ·TF-1000 ·TF-5000/6000 ·(H-) EP-TF-5300
Function	·Flow rate indication ·Totalizer ·Analog output ·Pulse output ·RS-485



TC series



Model	TC-1000/2000	EP-TC-1000/2000 V	TC-3000
Fluid	Gas		
Function	·Flow rate control ·Voltage output		·Flow rate control ·4 to 20 mADC ·0 to 5 VDC
Measuring range (air)	Min.	0 to 5 mL/min (nor)	
	Max.	0 to 500 L/min (nor)	0 to 800 L/min (nor)
Process connection	Rc, SW 1/4" to 1"	Rc, SW, VCR 1/4" or 3/8"	Rc 1/4 to 1
Standard material	SUS316		

HM series



Converter for TC series



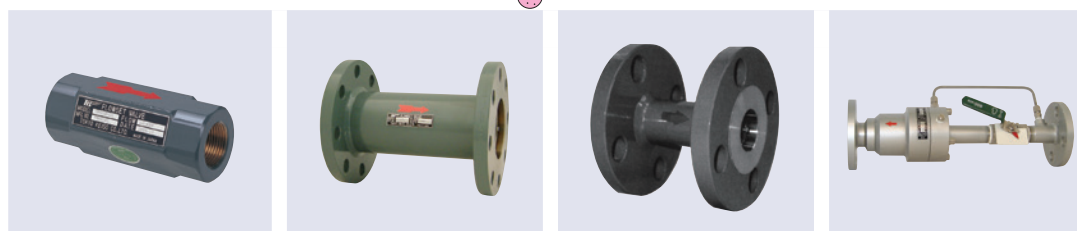
Model	HM1000	HM5000
Fluid	Gas	
Function	·Flow rate control	·Voltage output
Measuring range (air)	Min.	0 to 5 mL/min (nor)
	Max.	0 to 20 L/min (nor)
Process connection	1/4" SW	1/4" to 1/2" SW
Standard material	SUS316	

Type	TM-1400
Power supply	85 to 240 V AC
Applicable instrument	·TC-1000 ·TC-2000 ·TC-3000 ·EP-TC-1000/2000V
Function	·Flow rate indication ·Analog output ·Flow rate setting

Constant Flow Valve

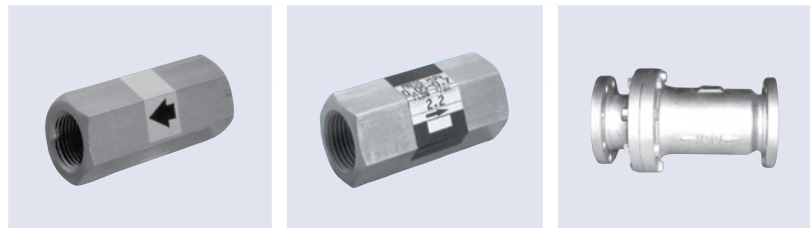


CX series



Model	CX-1101	CX-1500	CX-1510	CX-2000
Fluid	Liquid	Gas	Water	Liquid
Flow range (water/air)	Min.	3 to 10 L/min	0.7 to 1.1 m³/h	0.2 to 1.2 m³/h
	Max.	25 to 70 L/min	22 to 60 m³/h	10 to 70 m³/h
Process connection	Rc 1/2 to 1-1/2	·Rc (NPT) 1/2 to 2 ·Flange 15 mm to 150 mm (1/2" to 6")	·Rc (NPT) 1/2 to 2 ·Flange 15 mm to 100 mm (1/2" to 4")	Flange 15 mm to 100 mm (1/2" to 4")

FPC/RSP/NSPW series



Model	FPC	RSP	NSPW/NFFW/NFF-S
Fluid	Water	Water	Water and other liquids
Flow range (water)	Min.	0.7 to 2 L/min	5 to 20 L/min
	Max.	4 to 7 L/min	22 to 850 L/min
Process connection	Rc 1/4 to 1/2	Rc 3/8, Rc 1/2	·Rc 3/8 to 1 ·Flange 32 mm to 80 mm (1-1/4" to 3")

Pitot Tube Flowmeter, Calorie Monitor (for Air conditioning application)



CFW/CDT series



Model		CFW1000	CFW2000	CDT1000	CDT2000
Fluid		Water, Cold water			
Function		·Local indication	·Local indication ·Detachable	·Local indication ·Alarm output ·Current output ·Battery powered	·Local indication ·Detachable ·Battery powered
Measuring range (water)	Min.	12 to 100 L/min		5 to 50 L/min	
	Max.	4500 to 35000 L/min		1600 to 16000 L/min	
Process pipe size		20 mm to 450 mm (3/4" to 18")			
Standard material		SUS316 / C3604			

Flapper-type Flowmeter



STK series



Model		STK2000	STK7400
Fluid		Liquid	
Function		·Local indication	·Local indication ·Alarm output
Measuring range (water)	Min.	0.3 to 1.5 m³/h	
	Max.	120 to 600 m³/h	
Process connection		Flange 15 mm to 300 mm (1/2" to 12")	
Standard material		SS400, SGP SCS14, SUS304, PVC	

Sight Glass



STK4000



Model		STK4000
Fluid		Liquid
Function		·Local indication
Measuring range (water)	Min.	0.16 to 0.6 m³/h
	Max.	120 to 600 m³/h
Process connection		·Rc 1/2 to 3/4 ·Flange 25 mm to 300 mm (1" to 12")
Standard material		FCD450, SS400 SCS14, SUS304

EGM series



Model	
Fluid	
Function	
Measuring range	Min.
	Max.
Process connection	
Standard material	

Ex d

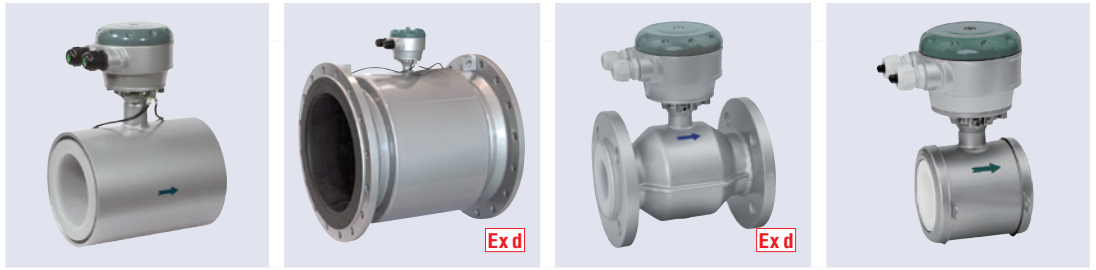
Model	
Fluid	
Function	
Measuring range	Min.
	Max.
Process connection	
Standard material	

Capacitive type
(Meter size 25 mm to 100 mm)

Model	
Fluid	
Function	
Measuring range	Min.
	Max.
Process connection	
Standard material	

Battery-powered
(Meter size 25 mm to 200 mm)

Model	
Fluid	
Function	
Measuring range	Min.
	Max.
Process connection	
Standard material	

Separate Type Detector
EGS series


PFA Lining (Meter size 10 mm to 150 mm)		Hard rubber / PP Lining (Meter size 25 mm to 1000 mm)		PFA or other Lining (Meter size 10 mm to 1000 mm)		Ceramic type (Meter size 2.5 mm to 100 mm)			
Model		EGS1000		EGS2000		EGS4000		EGS5000	
Fluid		Conductive liquids							
Measuring range	Min.	0 to 0.09 m³/h		0 to 0.6 m³/h		0 to 0.09 m³/h		0 to 0.01 m³/h	
	Max.	0 to 700 m³/h		0 to 33000 m³/h		0 to 33000 m³/h		0 to 300 m³/h	
Process connection		Wafer 10 mm to 150 mm (3/8" to 6")		Flange 25 mm to 1000 mm (1" to 40")		Flange 10 mm to 1000 mm (3/8" to 40")		Wafer 10 mm to 100 mm (3/8" to 4")	
Standard material		PFA / Hastelloy® C		Polypropylene (PP) · Hard rubber / Hastelloy® C		PFA · PTFE · ETFE / Hastelloy® C		Zirconia ceramic Alumina ceramic / Platinum	

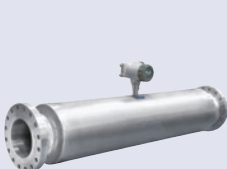
Separate Type Converter
EGC series


Standard type		High-performance type	
EGC050W		EGC100W	
100 to 230 V AC / 24 V DC		EGC300F/W	
·Flow rate indication		·Totalizer ·Current output (HART) ·Pulse output ·Status output	
EGS/MGS/IFS series		Electromagnetic flow detectors	

SWIRLMAX® Vortex Flowmeter
VFM4200


VFM4200	
Gas, Liquid, Steam	
·Local indication ·Current output ·Pulse output	
0.91 m³/h	
1772 m³/h	
12.1 m³/h (nor)	
25250 m³/h (nor)	
11.8 kg/h	
22996 kg/h	
Flange 15 mm to 300 mm (1/2" to 12") Wafer 15 mm to 100 mm (1/2" to 4")	
316L SS	


MMM series

			
Ex d	Ex d	Ex d	Ex d
Straight twin tube (Meter size 15 mm to 50 mm)	Straight twin tube (Meter size 10 mm to 400 mm)	Single tube (Meter size 1 mm to 4 mm)	Straight single tube (Meter size 6 mm to 80 mm)
MMM1400R	MMM2400R	MMM3400R	MMM7400R
Liquid			
·Flow rate indication ·Totalizer ·Current output (HART) ·Pulse output ·Status output ·Density measurement (for 15 mm or larger meter sizes)			
48 kg/h	1560 kg/h	0.3 kg/h	12 kg/h
125,000 kg/h	4,600,000 kg/h	450 kg/h	560,000 kg/h
Flange 15 mm to 80 mm (1/2" to 3")	Flange 100 mm to 400 mm (4" to 12")	1/4 NPT male	Flange 10 mm to 100 mm (3/8" to 4")
ASTM UNS S31803 / 316L SS		316L SS	Titanium · Hastelloy® C22

MMM series

 Twin tubes, high precision and low and high temperature resistant model
(Meter size 8 mm to 200 mm)

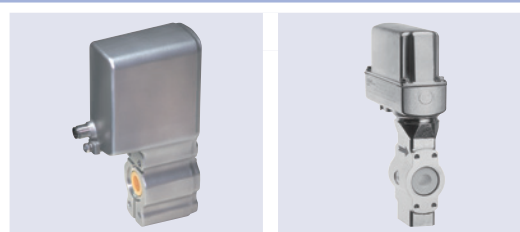
Model		MMM6400R
Fluid		Liquid, Gas
Function		·Flow rate indication ·Totalizer ·Current output (HART) ·Pulse output ·Status output ·Density measurement
Measuring range	Min.	5 kg/h
	Max.	1,000,000 kg/h
Process connection		Flange 10 mm to 200 mm (3/8" to 8")
Standard material		316/316L SS (dual certified)

Flowmeter for Filling Machines

Coriolis Mass Flowmeter
MMM4011C

 Twin tube
(Meter size 10 mm, 15 mm)

Model		MMM4011C
Fluid		Liquid
Function		·Pulse output
Recommended filling conditions	Flow rate	8 mm: 5 to 165 g/sec 10 mm: 10 to 360 g/sec 15 mm: 25 to 1200 g/sec
	Min. filling volume	8 mm: 7.5 g 10 mm: 15 g 15 mm: 37.5 g
	Min. filling time	1.5 s
	Process connection	Sanitary joint: 10 mm to 15 mm (3/8" to 1/2")
Standard material		316L SS

Electromagnetic Flowmeter
EGM series

 Ceramic type
(Meter size 10 mm, 15 mm)

 Ceramic type
(Meter size 2.5mm to 40 mm)

Model		EGM5500C	EGM5015C
Fluid		Conductive liquids	
Function		·Pulse output	
Recommended filling conditions	Flow rate	10 mm: 60 to 200 mL/sec 15 mm: 150 to 600 mL/sec	2.5 mm: 3 to 10 mL/sec 40 mm: 1000 to 3000 mL/sec
	Min. filling volume	10 mm: 100 mL 15 mm: 200 mL	2.5 mm: 10 mL 40 mm: 1500 mL
	Min. filling time	1.5 s	1.5 s
	Process connection	Wafer: 10 mm to 15 mm (3/8" to 1/2")	Wafer: 10 mm to 40 mm (3/8" to 1-1/2")
Standard material		Zirconia ceramic / Platinum	Zirconia ceramic Alumina ceramic / Platinum



BIOMAG® Electromagnetic Flowmeter

BIOMAG



Model		BM/BIOMAG4050C	
Power supply		24 V DC	
Fluid		Liquid	
Function		·Current output ·Pulse output	
Flow range	Min.	0.015 to 3 L/min	
	Max.	0.5 to 75 L/min	
Process connection		Barb fittings 1/4 to 1	
Standard material		PUS, Hastelloy C22	

BIOSONIC® Ultrasonic Flowmeter

BIOSONIC



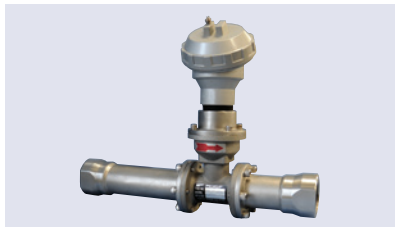
Model		BS	SFC4000-EV
Power supply		24 V DC	
Fluid		Liquid	
Function		·Flow rate indication ·Current output ·Pulse output ·Alarm output	
Flow range	Min.	0 to 3 L/min	
	Max.	0 to 8 L/min	
Process connection		Barb fitting 3/8	
Standard material		PSU	

Flow Measurement System for Automobile Bench Test



CNG Flow Measurement System

Detector



Model		TH-1800-T	
Fluid		CNG	
Function		·Local indication ·Current output	
Measuring range	Min.	5 to 365 L/min (nor)	
	Max.	45 to 3795 L/min (nor)	
Protection category		Equivalent to IP65	
Process connection		·Rc 3/8 to 1 ·Flange: 15 mm to 50 mm (1/2" to 2")	
Accuracy		±1% R.D (Flow range 5 to 100%)	
Standard material		SUS304/ Fluororubber	
Option material		SUS316/ Fluororubber	
Converter		TRX-700-CNG	

Converter



Model		TRX-700-CNG	
Function		·Flow indication ·Temperature indication or Total flow (continuous)	
Power supply		90 to 264 V AC	
Output		·4 to 20 mA DC or 1 to 5 V DC ·RS485 ·Flow alarm	
Cable length		10 m (100 m Max.)	

Flowmeter for Engine Cooling Water



EF-AUTO



Detector/Converter Separate type

Model		EF-AUTO	
Fluid		Conductive liquids	
Measuring range	Min.	0 to 1 L/min	
	Max.	0 to 1400 L/min	
Temperature		-20 to 180°C	
Pressure		0 to 1 MPa	
Process connection		Hose fitting 6 mm to 50 mm (1/4" to 2")	
Power supply		100 to 230 V AC	
Output		4 to 20 mA DC	
Protection category		Equivalent to IP65	
Material		Zirconia ceramic, alumina ceramic	

Flowmeter for Intake Air



GFM series



Detector/Converter Integrated type

Model		OPTISONIC 7300	
Fluid		Air	
Measuring range	Min.	12 to 300 m³/h	
	Max.	88 to 3530 m³/h	
Temperature		-20 to 100°C	
Pressure		Atmospheric pressure	
Process connection		Flange: 65 mm to 250 mm (2-1/2" to 10")	
Power supply		100 V AC	
Output		4 to 20 mA DC	
Protection category		IP66	

Radiator Air Flow Measurement System

RF series

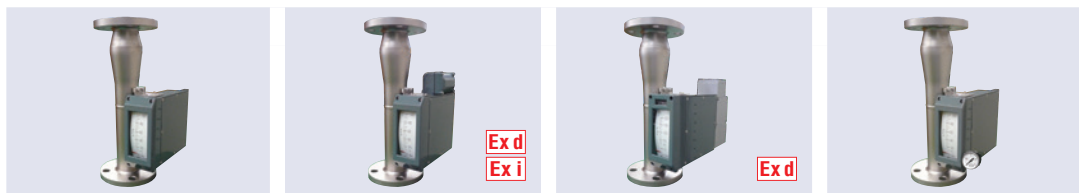


	RF-1000 series	RF-2000 series
	Propeller sensor	Propeller sensor
Model	RS-1038 / RS-1050	RS-1050-IR
Sensor type	Optical sensor with optical cable	Infra-Red sensor with electrical cable
Measuring range	RS-1038: 0.5 to 30 m/s, RS-1050: 0.4 to 30 m/s	0.4 to 30 m/s
Temperature	0 to 120°C (100°C in continuous operation)	-40 to 120°C (100°C in continuous operation)
Accuracy	RS-1038: $\pm (1.5\% \text{ of R.D} + 0.05 \text{ m/s})$ at 0.5 to 20 m/s RS-1050: $\pm (1\% \text{ of R.D} + 0.05 \text{ m/s})$ at 0.4 to 20 m/s	$\pm (1\% \text{ of R.D} + 0.05 \text{ m/s})$ at 0.4 to 20 m/s
Sensor diameter	RS-1038: approx. 40 mm, RS-1050: approx. 64 mm	approx. 69 mm
	Converter	Converter
Model	RR-5000B	RR5000D
Power supply	12 V DC	12 to 24 V DC
Measuring channel	8 ch	16 ch
Output	-5 to 5 V DC	0 to 5 V DC
Accuracy	Frequency output: $\pm 1 \text{ Hz}$ Analog output: $\pm 0.6\% \text{ R.D.} \pm 0.01 \text{ V}$	Frequency output: $\pm 1 \text{ Hz}$ Analog output: $\pm 0.6\% \text{ R.D.} \pm 0.01 \text{ V}$
Communication	RS485 (RS232 converter + Wind1 required)	RS485, CAN network

Custom-made Product

Metal Tube Variable Area Flowmeter

AM-1000



Model		AM-1400	AM-1740	AM-1690	AM-1310
Fluid		Liquid, Gas, Steam			
Function		·Local indication	·Local indication ·Alarm output	·Local indication ·Totalizer ·Pulse output	·Local indication ·Pneumatic output
Measuring range (water)	Min.	0.01 to 0.1 m³/h			
	Max.	15 to 150 m³/h			
Measuring range (air)	Min.	0.35 to 3.5 m³/h (nor)			
	Max.	450 to 4500 m³/h (nor)			
Process connection		Flange: 15 mm to 150 mm (1/2" to 6")			
Standard material		SUS304, SUS316, SUS316L			
Available lining material		Rubber, fluorocarbon resin, PVC, glass			

M series



Model		M-400	M-740	M-310
Fluid		Liquid, Gas, Steam		
Function		·Local indication	·Local indication ·Alarm output	·Local indication ·Pneumatic output
Measuring range (water)	Min.	0.01 to 0.1 m³/h		
	Max.	80 to 800 m³/h		
Measuring range (air)	Min.	0.3 to 3 m³/h (nor)		
	Max.	560 to 5590 m³/h (nor)		
Process connection		Flange: 15 mm to 300 mm (1/2" to 12")		
Standard material		SUS304, SUS316, SUS316L		
Available lining material		Rubber, fluorocarbon resin, PVC, glass		

Nominal flow rate of variable area flowmeters

In this catalog, the following fluids are used for the measuring range of each model.

Liquid: Water with a density of 1.0 g/cm³ and a viscosity of 1.0 mPa·s

Gas: Air at 0°C, 0 MPa (1 atm)

If actual operating conditions differ from the above, correct the values with the formulas given below.

For gas measurement

Correct the value considering the density, pressure, and temperature of the measuring gas.

1. When the flow rate is indicated in the normal condition

$$Q_{air} = Q_0 \times \sqrt{\frac{\rho_0}{1.293}} \times \sqrt{\frac{273+T_0}{273}} \times \sqrt{\frac{0.1013}{0.1013+P_0}}$$

Q_{air} : Corrected flow rate

Q_0 : Flow rate of the measuring gas in actual conditions

(Flow rate in normal conditions: 0°C, 0 MPa)

ρ_0 : Density of the measuring gas (kg/m³ (nor))

T_0 : Fluid temperature (°C)

P_0 : Fluid pressure (MPa)

2. When the flow rate is indicated in operating conditions

$$Q_{air} = Q_0 \times \sqrt{\frac{\rho_0}{1.293}} \times \sqrt{\frac{273}{273+T_0}} \times \sqrt{\frac{0.1013+P_0}{0.1013}}$$

Q_{air} : Corrected flow rate

Q_0 : Flow rate of the measuring gas in actual conditions

(Flow rate in operating conditions: T_0 °C, P_0 MPa)

ρ_0 : Density of the measuring gas (kg/m³ (nor))

T_0 : Fluid temperature (°C)

P_0 : Fluid pressure (MPa)

For liquid measurement

When the density of the measuring liquid is not 1.0 g/cm³

$$Q = Q_0 \times \sqrt{\frac{\rho_0(\rho_1-1)}{(\rho_1-\rho_0)}}$$

Q : Corrected flow rate

Q_0 : Flow rate of the measuring liquid

ρ_0 : Density of the measuring liquid (g/cm³)

ρ_1 : Density of the float (g/cm³)

Table of float density

Float material	Fluorocarbon resin	Glass	Ruby	PVC	Stainless steel	Titanium	NW0276 (equivalent to Hastelloy C)	Stainless steel AM7000
Density (g/cm ³)	2.2	2.67	4	1.45	7.9	4.5	8.2	7.7
Applicable instrument	Glass tube flowmeter						Metal tube flowmeter	

Note: 1. Some models have weights in the float, which increases the density.

2. Some models will be affected by fluids with a viscosity of 1 mPa·s or larger. See the respective product catalogs.

Properties of gases

	Gas	Molecular formula	Density: kg/m ³ (nor) at 0°C, 0 MPa	Viscosity (mPa·s)	
				at 0°C	at 20°C
Inorganic compounds	Ammonia	NH ₃	0.7713	0.0093	0.0100
	Argon	Ar	1.783	0.0212	0.0222
	Nitrous oxide	N ₂ O	1.988	0.0137	0.0146
	Nitrogen oxide	NO	1.340	0.0179	0.0188
	Carbon monoxide	CO	1.250	0.0166	0.0177
	Carbon dioxide	CO ₂	1.977	0.0138	0.0147
	Sulfurous acid gas	SO ₂	2.927	0.0116	0.0126
	Hydrogen chloride	HCl	1.639	0.0131	0.0143
	Chloride	Cl ₂	3.214	0.0123	0.0132
	Air	(AIR)	1.293	0.0171	0.0181
	Oxygen	O ₂	1.429	0.0192	0.0203
	Cyanogen	C ₂ N ₂	2.335	0.0093	–
	Hydrogen bromide	HBr	3.645	0.0170	–
	Bromine	Br ₂	7.139	0.0146	0.0153
	Hydrogen	H ₂	0.08994	0.0084	0.0088
Organic compounds	Nitrogen	N ₂	1.251	0.0166	0.0175
	Fluorine	F ₂	1.696	–	–
	Hydrogen sulfide	H ₂ S	1.539	0.0117	0.0124
	Helium	He	0.1785	0.0186	0.0196
	Acetylene	C ₂ H ₂	1.171	0.0096	0.0102
	Acetone	C ₃ H ₆ O	2.593	0.0066	–
	Isobutane	C ₄ H ₁₀	2.595	0.0069	0.0074
	Isopropyl alcohol	C ₃ H ₈ O	2.683	0.0070	–
	Ethanol	C ₂ H ₆ O	2.057	0.0075	–
	Ethane	C ₂ H ₆	1.356	0.0086	0.0092
	Ethyl ether	C ₄ H ₁₀ O	3.309	0.0068	–
	Ethylene	C ₂ H ₄	1.260	0.0094	0.0101
	Ethyl chloride	C ₂ H ₅ Cl	2.880	0.0094	–
	Methyl chloride	CH ₃ Cl	2.308	0.0098	0.0106
	Methylene chloride	CH ₂ Cl ₂	3.792	0.0091	0.0099
	Chloroform	CHCl ₃	5.329	0.0093	0.0100
	Butane	C ₄ H ₁₀	2.703	0.0069	0.0074
	Propane	C ₃ H ₈	2.020	0.0075	0.0080
	Propyl alcohol	C ₃ H ₈ O	2.683	0.0068	–
	Propylene	C ₃ H ₆	1.879	0.0078	0.0084
	Hexane	C ₆ H ₁₄	3.847	0.0059	–
	Benzene	C ₆ H ₆	3.488	0.0068	0.0074
	Pentane	C ₅ H ₁₂	3.221	0.0062	–
	Methanol	CH ₄ O	1.430	0.0087	–
	Methane	CH ₄	0.7168	0.0102	0.0108
	Methyl ether	C ₂ H ₆ O	2.057	0.0085	0.0091
	Utility gas	13A	0.8407	–	0.0105

Float Type Level Meter

Float & Tape Type Level Meter (Tank Gauge)

FT/FP-1000
FT-2000

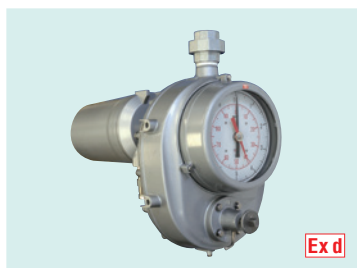


Ex d

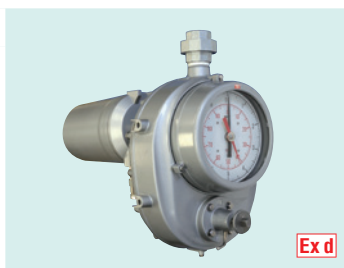
Model		FT-1000	FP-1000	FT-2000
Function		·Local indication	·Current output ·Alarm output ·Pneumatic output	·Digital output
Measuring range	Min.	3 m		
	Max.	30 m	10 m	30 m
Temperature (at the wetted parts)		-196 to 400°C	0 to 150°C	-196 to 400°C
Pressure		Standard: For low pressure applications Option: For high pressure applications		
Process connection		·Rc 1-1/2 ·Flange 40 mm (1-1/2")		
Standard float material		SUS304		
Optional float material		SUS316, SUS316L, PVC		SUS316, SUS316L

Analog Transmitter

TR/AT series



Ex d



Ex d



Model	TR-210, TR-221 to 226	TR-101 to 106	AT-101W
Power supply / Supply air	24 V DC	—	Pneumatic pressure: 0.14 MPa
Function	·Current output ·Alarm output	·Alarm output	·Pneumatic output
Output	4 to 20 mA DC, Alarm contact: 1 to 6 points	Alarm contact: 1 to 6 points	Pneumatic output: 20 to 100 kPa

Digital Transmitter

DM4N



Ex d

Model	DM4N-1	DM4N-2	DM4N-3
Power supply	20 to 35 V DC	85 to 264 V AC	
Function	Digital output: Level · Temperature · Alarm		
Communication	One-way communication	Two-way communication	One-way communication
Measuring range	0 to 40 m, 0 to 60 m		

Magnet Float Type Level Transmitter

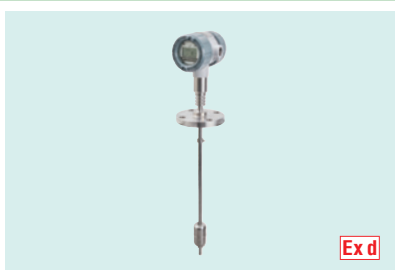
FP-7100



Model	FP-7100	
Power supply	24 V DC	
Function	Level measurement, interface measurement	
Output	4 to 20 mA DC	
Measuring range	Min.	300 mm
	Max.	5000 mm
Temperature (at the wetted parts)	·SUS + 0 to 100°C ·PVC + 0 to 60°C ·PFA + 0 to 100°C	
Pressure	1 MPa max. (0.2 MPa max. for resin)	
Process connection	Flange: 80 mm to 200 mm (3" to 8")	
Wetted parts material	SUS304, SUS316, SUS316L, PVC, PFA	

Magnetostrictive Level Transmitter

FGY1000



Model	FGY1000	
Power supply	24 V DC	
Function	Level measurement, interface measurement	
Output	4 to 20 mA DC (2-wire system)/HART (Rev.7)	
Measuring range	Min.	250 mm
	Max.	7500 mm
Temperature (at the wetted parts)	·SUS: -40 to 125°C ·PVC: 0 to 60°C ·PFA: 0 to 100°C	
Pressure	2 MPa max.	
Process connection	Flange: 50 mm to 200 mm (2" to 8"), Ferrule: 2.5 S to 6.5 S Screw: R2, G2	
Wetted parts material	SUS304, SUS316, SUS316L, Titanium, NW0276, PVC, PFA (tubing)	

MAG GAUGE Metal Tube Type Level Meter

FM series



Model	FM4000		FM-1000	
Function	·Local indication ·Alarm output ·4 to 20 mA DC ·Alarm output + 4 to 20 mA DC		·Local indication ·Alarm output ·4 to 20 mA DC ·Alarm output + 4 to 20 mA DC	
Measuring range	Min.	250 mm	250 mm	
	Max.	4900 mm	0 to 4380 mm (Depends on chamber material)	
Temperature (at the wetted parts)	-196 to 400°C		-10 to 120°C (350°C Max.)	
Pressure	40 MPa (max.)		20 MPa max.	
Process connection	Flange: 25 mm (1") (standard)		Flange: 25 mm (1") (standard)	
Chamber material	SUS304, SUS316, SUS316L		·SUS304, SUS316, SUS316L ·PVC (HT-PVC) ·SUS + PVC lining ·SUS + ETFE lining	·SUS + PFA lining ·SUS + PTFE lining ·SUS + Glass lining

Displacer Type Level Meter

Servo-balancing Type Tank Gauge

FW9000NN



Model		FW9000NN	
Power supply		100 to 240 V AC	
Function		·Digital output ·Current output	
Measuring range	Min.	5 m	
	Max.	60 m	
Temperature (at the wetted parts)		-200 to 300°C	
Pressure		·Atmospheric (Low pressure version) ·3 MPa max. (High pressure version)	
Process connection		Flange: 80 mm to 150 mm (3" to 6")	
Pressurized parts material	Low press. version	AC2A, SCS13, SCS14	
	High press. version	SCS13, SCS14	

Torque Tube Type Level Meter

FST4000



Model		FST4000	
Power supply		8 to 40 V DC	
Function		·Level measurement ·Interface measurement ·Density measurement	
Output		4 to 20 mA DC	
Measuring range	Min.	300 mm	
	Max.	3000 mm	
Temperature (at the connect. part)		-196 to 450°C	
Pressure		ASME Class 150 to 2500	
Process connection		Flange: 40 mm to 100 mm (1-1/2" to 4")	
Displacer material		SUS304, SUS316, SUS316L, NW0276, MONEL, PVC	

Spring-balancing Type Level Meter

FS series



Model		FS-110	FS-115	FS-313	FS-517
Function		·Local indication	·Local indication ·Alarm output	·Local indication ·Pneumatic output 20 to 100 kPa	·Local indication ·Current output ·Alarm output
		Level measurement · Interface measurement · Density measurement			
Power supply / Supply air		—	—	0.14 MPa	12 to 30 V DC
Measuring range	Min.	300 mm			
	Max.	3000 mm			
Temperature (at the wetted parts)		-10 to 150°C (-40 to 350°C)			
Pressure		9.8 MPa max.			
Process connection		Flange: 80 mm to 125 mm (3" to 5")			
Displacer material		SUS304, SUS316, SUS316L, NW0276, PVC			

Microwave Level Meter

TLR series



Model		TLR7400	TLR7500
Measuring object		Liquid, Paste, Slurry	
Frequency band		24 GHz	80 GHz
Output/Power supply		2-wire, 4 to 20 mA DC / 24V DC	
Measuring range	Min.	0.2 m	0.1 m
	Max.	100 m	50 m
Liquid temperature		-50 to 200°C	-50 to 150°C
Pressure		· Horn antenna: 0 kPa (abs) to 4 MPa · Drop antenna: 0 kPa (abs) to 4 MPa	· Lens antenna: 0 kPa (abs) to 4 MPa
Wetted part material		SS316L: Process connection, metal horn antenna PTFE, PEEK: Drop antenna	SS316L: Process connection PEEK: Lens antenna
Process connection		G1-1/2 Flange: 40 mm to 200 mm (1-1/2" to 8")	G3/4 to G3 Flange: 50 mm to 200 mm (2" to 8")

Micropulse Level Meter

TGR/TGF series



Model		TGF7200	TGF6200	TGF1100
Measuring object		Liquid, slurry	Granules	Liquid, Slurry, Granules
Output		4 to 20 mA DC		
Power supply		24 V DC		
Measuring range	Min.	-		
	Max.	- Single rod probes: 8 mm in dia. and 10 mm in dia. (PTFE coating) - Twin rod probe: 8 mm in dia., 2 pieces - Single cable probe: 4 mm in dia. - Twin cable probe: 4 mm in dia. 2 pieces - Coaxial cylinders: 22 mm in dia., 42 mm in dia.	Single cable probe: 8 mm in dia.	- Single cable: 10 m (20 m) - Coaxial: 4 m
Temperature (process)		-50°C to 250°C	-50°C to 200°C	-50 to 100°C
Pressure		0 kPa (abs) to 10 MPa	0 kPa (abs) to 4 MPa	0 kPa (abs) to 1.6 MPa
Wetted part material		SS316L, Hastelloy C	SS316L (excluding probe)	SS316L (excluding probe)
Probe material		SS316, SS316L, Hastelloy C, FEP, PTFE	SS316, SUS316L, PTFE	SS316, SS316L
Process connection		G 3/4 to 1-1/2, 3/4 to 1-1/2 NPT Flange: 40 mm to 200 mm (•" to •")	G 1-1/2, 1-1/2 NPT Flange: 40 mm to 200 mm (•" to •")	G 3/4 to 1, 3/4 to 1 NPT

Ultrasonic Level Meter

UW series



Model	UW3200	UW5000
Measuring object	Liquid, Slurry	Liquid, Slurry, Powder, Granule, Gravel
Power supply	12 to 24 V DC	100 to 240 V AC
Output	4 to 20 mA DC	4 to 20 mA DC
Measuring range	0.3 to 10 m	0 to 5 m (min.) 0 to 60 m (max.)

Purge Type Level Meter

CP series Purge Set



Model	CP-22-100-B
Supply fluid	Air, N ₂
Supply pressure	0.3 to 0.99 MPa
Standard flow range	0 to 1.2 L/min (std) (20°C, 1 atm)
Mounting type	- Panel mount type - U-bolt mount type - Box type - Dual type
Panel material	SPCC, SUS304

PGT series Bubbler Tube

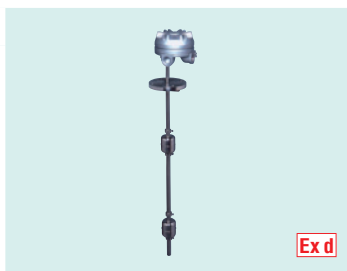


Model	PGT
Measuring object	Liquid
Max. measuring length	- Stainless st.: 16000 mm - PVC: 4000 mm
Process connection	- Fixed flange: 10 mm to 25 mm JIS10K - Sliding flange: 15 mm to 40 mm JIS10K
Purge connection	Rc 1/4
Material	SUS304, SUS316 PVC

Level Switch

Float Type / Displacer Type Level Switch

FP-4000



Model	FP-4000	FP-4100	FP-4200
Alarm	1 to 5 points	1 to 6 points	
Max. length of guide pipe	-4.9 m for stainless steel model (3.9 m for Ex-proof model)		-3.9 m for resin model
Contact switch	Reed switch		
Temperature (at the wetted parts)	0 to 60°C (-20 to 150°C)		0 to 60°C (-5 to 80°C)
Pressure	0.66 MPa		0.13 MPa
Process connection	Flange 50 mm (2")		Flange 80 mm (3")
Float material	SUS304, SUS316, SUS316L, PVC, HT-PVC, PP, PFA	SUS304, SUS316 SUS316L, PVC, HT-PVC, PP, PFA	SUS304, SUS316, SUS316L, PVC, HT-PVC, PP, PTFE, PFA

FR series FS series



	Float type	Spring-balancing Displacer type
Model	FR-6000	FS-100
Alarm	1 point	1, 2, 3 or 4 points
Contact switch	Micro switch	Micro switch
Temperature (at the wetted parts, for stainless steel model)	-25 to +400°C	-60 to +400°C
Pressure	10 K, 20 K, 30 K Class	4.9 MPa max.
Process connection	Flange 100 mm (4")	Flange 80 mm to 150 mm (3" to 8")
Float material	SUS304, SUS316, SUS316L	SUS316, SUS316L, TP340

FB series



	Float type	Float type
Model	FB-5000	FB-7000
Alarm	1 point	1 point
Contact switch	Reed switch	Micro switch
Temperature (at the wetted parts)	-5 to +90°C	-170 to +400°C
Pressure	2 MPa max.	4 MPa max.
Process connection	R 1-1/2 Flange 40 mm (1-1/2")	Flange 80 mm (3")
Float material	SUS316	SUS316L

Capacitance Type Level Switch

CA-1000



	CA-1000	CA-1000S
Model		
Alarm	1 point	
Temperature (at the wetted parts)	-10 to 80°C (-10 to 300°C)	
Pressure	1 MPa max.	
Process connection	Flange: 25mm (1")	
Probe material	SUS304, SUS316, SUS316L	

Relay Driver

RD-1000



Model	RD-1000
Function	Amplifier with low-capacity contacts
Combination instrument	Combination with level switches
Power supply	100 / 200 V AC
Output	1 contact

Peripheral Instruments for Tank Gauging System

Receiver for Digital Tank Gauging System

CATAMS® series NMR series



Model	CATAMS	NMR5000	IFX30000	DIR-530
Function	Tank data monitoring software	Tank Data Receiver	Interface unit	Tank data receiver
Main display mode	·Calibration with 12 different screens ·Real-time tank data ·Data after loading/unloading ·Data of all tanks ·Liquid level in the bar graph ·Data history ·Error codes and details ·Alarm record ·Others	·Main menu ·One tank ·Tank lists ·Tank status ·Tank graphs ·History ·Slot status	–	·For constant monitoring of a single tank ·For small tank yards with a few tanks ·Interface for host systems
Power supply	Depending on PC specifications	100 to 240 V AC	24 V DC	85 to 250 V AC
Host interface	·LAN ·RS-232C ·Others	·LAN ·RS-232C ·Others	·LAN ·RS-232C ·RS-485 ·USB Type-C	·RS-232C ·RS-485 Others
Number of transmitters	–	·Max. 256 transmitters (2 way) ·Max. 128 transmitters (1 way) ·Max. 160 transmitters (communication with third-party products)	·Max. 32 transmitters (2 way) ·Max. 16 transmitters (1 way) ·Max. 20 transmitters (communication with third-party products)	·Max. 16 transmitters (2 way) ·Max. 4 transmitters (1 way)
Communication	–			

Tank-side Indicator

DIR-110NN



Model	DIR-110NN
Function	Tank-side indication
Indication	·Liquid level ·Temperature ·Other statuses
Power supply	100 to 240 V AC
Output	Relay contact (6 points)
Applicable tank gauge	FW9000NN

Temperature Sensor for Tanks

AT series



Model	ATM	ATS
Function	Averaging temperature sensor	Multi-spot type averaging temperature sensor
Measuring range	0 to 100°C	
Probe length	30 m max.	
Number of elements	16 max.	
Process connection	Flange: 40 mm to 100 mm (1-1/2" to 4")	

MICROCELL Weight Measurement System

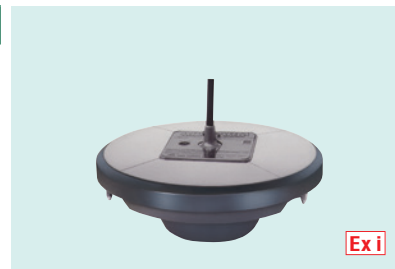
SVS2000



Model	SVS2000
Measuring method	MICROCELL
Measuring object	·Direct measurement of product mass in vessels ·Measuring object: Silo, hopper, etc.
Power supply	100 V AC
Output	4 to 20 mA DC

Oil Leak Detector

CSR series



Model	CSR-3005/AS-40
Measuring method	Capacitance type
Measuring object	Floated oil
Power supply	100 / 200 V AC
Output	Contact output
Measuring range	3 to 5 mm oil layer

Level Gauge for LNG Tanks

Servo-balancing Type Tank Gauge

FW9000NN series



Model	FW9000NN
Power supply	100 to 240 V AC
Output	·Digital output ·Current output
Measuring range	Min. 5 m Max. 60 m
Temperature (at the wetted parts)	-200 to 300°C
Pressure	·Atmospheric (Low pressure version) ·3 MPa max. (High pressure version)
Process connection	Flange: 80 mm to 150 mm (3" to 6")
Pressurized parts material	For low pressures AC2A, SCS13, SCS14 For high pressures SCS13, SCS14

FW-2200 series



Model	FW-2200
Power supply	100 V AC (standard)
Output	Digital output
Measuring range	Min. 30 m Max. 60 m
Temperature (at the wetted parts)	-200 to 80°C
Pressure	2 MPa max.
Process connection	Flange: 40 mm (1-1/2")
Pressurized parts material	For low pressures AC4C, SCS13, SCS14 For high pressures SCS13, SCS14

Magnetic Float Type Level Gauge

SPT series



Model	SPT3500N	SPT7200N
Measuring method	- Level: Magnetic float (Hall IC) - Temperature: Pt 1000 RTD (max. 3 points) - Pressure: Ceramic sensor	- Level: Magnetic float (reed switch) - Temperature: Pt 100 RTD (max. 2 points)
Measuring object	Level, temperature, and pressure of liquid cargo	Level and temperature of liquid cargo
Indication	2-Line LCD with backlight (Separate indicator is available)	—
Output	2-wire system for power supply and serial BCD signal	Resistance output
Measuring range	- Level: 35 m max. - Temperature: -25 to 115°C - Pressure: 80 to 200 kPa	- Level: 30 m max. - Temperature: -25 to 125°C
Accuracy	- Level: ±20 mm (standard) or ±10 mm (precision type) - Temperature: ±1.5°C - Pressure: ±0.5% F.S.	- Level: ±1% F.S. - Temperature: ±2°C
Standard material	- Guide pipe: SUS304 - Flange: SUS304 - Float: SUS316L	- Guide pipe: SUS304 - Flange: SUS304 - Float: SUS316L
Optional material	- Guide pipe: SUS316 / SUS316L - Flange: SUS316 / SUS316L - Float: TP340 (LPG specification)	- Guide pipe: SUS316, SUS316L - Flange: SUS316, SUS316L
Explosion proof	Ex ia IIC T6...T4	Ex ia IIC T6 ... T4 Ga Ex ia IIIC T80°C, T150°C, T200°C Da

High-level Alarming Device

FP/MIA series

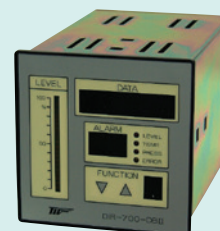


Model	FP-7091	MIA-LIDEC
Method	Float type level switch	Acoustic wave type level switch
Sensor	Reed switch	Piezo-electric element
Contact signal	2 points detection (high level and overflow)	
Accuracy	± 10 mm	± 10 mm
Application	- Cargo - Slop and fuel tanks - Bilge alarm etc.	Cargo tank etc.
Power supply	—	24 V DC (2-wire)
Standard material	- Float: SUS316 - Guide pipe: SUS304, SUS316, SUS316L	- Sensor: SUS316L - Support: SUS304, SUS316, SUS316L
Construction	- Non-explosion-proof (IP65) - Intrinsically safe (Ex ia IIC T6)	- Non-explosion-proof (Equivalent IP66) - Intrinsically safe (Ex ia IIC T6)

Instrument for Control Rooms

Super DIR series
Receiver

Model	Super DIR-M8000	CALTIS II Windows
LCD display	·10.4" touch panel ·19" touch panel	Delivery: ·Pre-installed PC (or CD-ROM for software only)
Power supply	24VDC	Your computer specification
Max. number of input sensors	80 units * 32 units of SPT3500N + 48 units of 4 to 20 mA sensors	·Super DIR-M3200/M8000 series
Connecting instrument (input)	·SP (T) 3500N ·SP (T) 7200N ·TA840 ·Others: 4 to 20 mA level, temperature, and pressure sensors, etc.	
Connecting instrument (output)	·DIR-700-DB II ·Serial communication RS232C/RS485 ·Ethernet (LAN) communication	·Serial communication RS232C/RS485 ·Ethernet (LAN) communication

TAN series
DIR series

Model	TAN-M1600-RP	DIR-700-DB II
Function	Annunciator unit	Multi-monitor for cargo tanks
Power supply	24 V DC	24 V DC
Output / Indication	Output ·Contact output for buzzers ·CPU trouble self-diagnosis contact output ·Contact output for external alarm lamps	Indication ·Bar graph of level ·Cargo data digital (Indication selectable: level, temperature and pressure) ·Alarm status ·Error
Number of input	16 Max.	—
Input signal	·Non-voltage contact ·Open collector contact	RS232C (from Super DIR-M3200 / M8000 series)

Differential Pressure Gauge

DT



Model	DT	
Measuring object	Liquid, Gas	
Function	·Local indication ·Current output ·Pulse output	
Measuring range	Min.	1 kPa
	Max.	50 kPa
Process connection	Rc 1/4	
Standard material	SUS316	

受信計

IR series



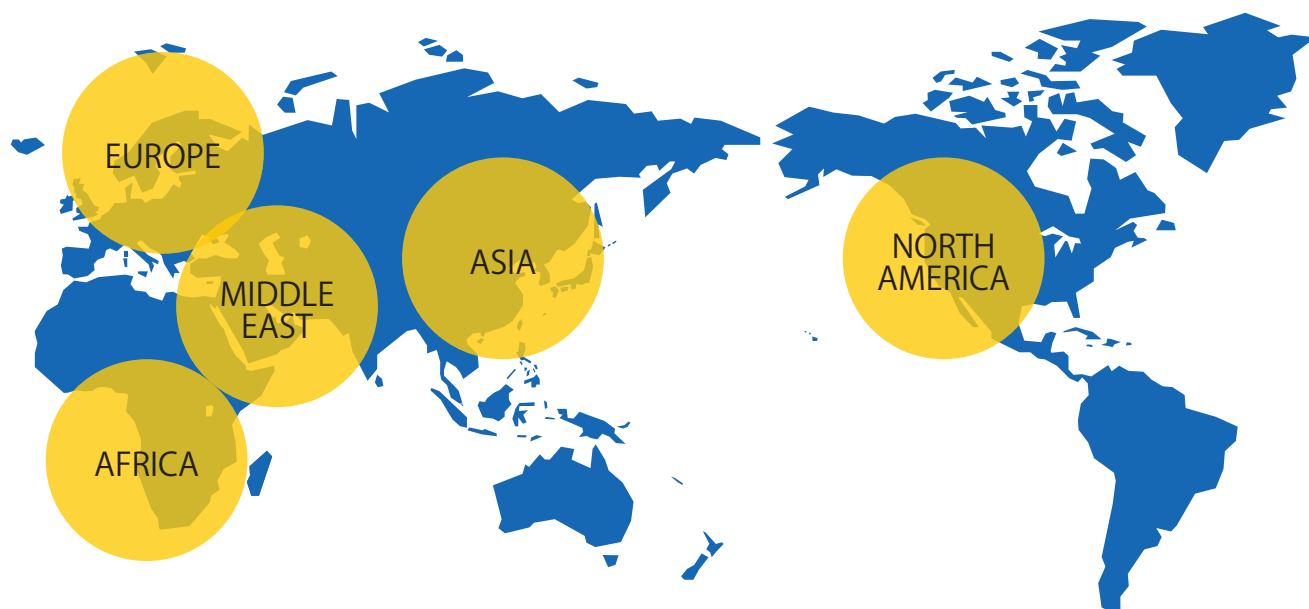
Model	IR4700	IR4800	IR1700
Power supply	100 to 240V AC 12 to 24V DC		24V DC
Function / Indication	·Flow rate indication ·Totalizer		
Input	·4 to 20mA DC or 4 to 20mA DC (2-wire system) or 1 to 5V DC or 0 to 5V DC ·Square root extraction function	·Open collector pulse or Voltage pulse	·Open collector pulse ·Voltage pulse
Output	·Pulse output ·Alarm output (flow rate/totalizer) ·4 to 20mA DC		·Pulse output ·Alarm output (flow rate/totalizer) ·4 to 20mA DC (optional) ·1c contact relay output (optional)
Power supply for the sensor	24V DC		12V DC

RR series



Model	RR930N	RR940N
Power supply	·10 to 27V DC	
Function / Indication	·Flow rate indication	
Input	·Open collector pulse ·Voltage pulse	
Output	·Re-output of pulse (Proportional to flow rate) ·Alarm output (flow rate)	·4 to 20mA DC or Voltage output ·Alarm output (flow rate)
Power supply for the sensor	12V DC	

Overseas base



* Specification is subject to change without notice.

TIV TOKYO KEISO CO., LTD.

Head Office : Shiba Toho Building, 1-7-24 Shibakoen, Minato-ku, Tokyo 105-8558

Tel : +81-3-3431-1625 (KEY) ; Fax : +81-3-3433-4922

URL : <https://www.tokyokeiso.co.jp>



SG-S2032-E03

Oct 2025 K