



FLOW METERS

PRODUCTS GUIDE

NITTO SEIKO

ROTOMECH

C-401, Sarwati
Suchidham Complex
Malad (E), Mumbai - 400097.
Ph : 022-65706705

"High Performance" and "High Liability" Are Guaranteed for NITTO SEIKO's Wide-ranged Line of Products from Flow Meters to Precision Machine Equipment to Meet the Needs from Various Industries.

Since 1949, NITTO SEIKO started the manufacture and sales of water meters. It has fully covered most of the international markets through its subsidiaries and branches. It continues to expand further the market and sales base of our measuring equipment. (The series "NITTO SEIKO" has been recognized a steady increase in the number of water meter installations all over the world. The equipment performance which allows a maintenance program to assist plant operations by remote-point and transmission of data, measuring the amount of water in real-time according to requirements. NITTO SEIKO has been steadily contributing such equipment to various industrial plants globally.

The series "NITTO SEIKO" products are of high-precision accuracy, including not only the products that measuring equipment for flow, the other series providing measurement of air, steam, viscosity, temperature, flow speed, the standard unit per meter, compared to production meter and further the extension device is equipped in various products range.

NITTO SEIKO will make its best effort to provide R&D for the development of equipment which can effectively meet the needs from various fields.



Creation of New Applications for Micro Flow Measurement



Nico Flow (Micro Flow Meter)

Types **NH, NH-VV**

In the fields of heat control and engine performance control or chemical industry, food industry and medical supply industry, high precision measurement of micro flow and liquid feeding in preset quantity are required. The Nico Flow is a high precision micro flow meter which adopts the rotary piston suitable for the measurement of micro flow. Beside the Nico Flow (Type NH) for flow measurement of ordinary liquid, the PVC Nico Flow (Type NH-VV) for flow measurement of strongly corrosive liquid which uses hard vinyl chloride resin at the wetted parts.

General Specifications (Type NH)

Liquid to be measured: Cold and hot water, petroleum, chemical liquids, food liquids etc.
 Size: 1/4B, 1/2B (Screw type), 15A, 20A (Flange type)
 Liquid viscosity: 0.4~100mPas
 Liquid temperature: -5~+120°C
 Liquid pressure: Working pressure - less than 1.0MPa (meter withstanding the pressure up to 21.0MPa is also available.)
 Accuracy: Within $\pm 0.75\%$
 Material: SCS14, SUS316

• Explosion-proof and flame-proof type (Exd II BT4) is also available.

Flow Range (NH Type --- L/h)

($\times 0.75\%$)

Liquid Viscosity	Gasoline	Water & equivalents	Kerosene	Light oil	A-B Heavy oil
Model	0.4~0.8mPas	0.8~1.0mPas	1~2mPas	2~10mPas	10~100mPas
NH15MC	3~15	3~15	3~15	1~15	0.3~15
NH15LD	7~30	7~30	7~30	2~30	1~30
NH15LM	12~100	12~100	8~100	3~100	2~100
NH15LL	15~200	15~200	10~200	3~200	4~200
NH15LDJ	40~600	30~600	20~600	15~600	10~600

• As for the connection with the instrument, refer to the "System 2" on page 19.
 • One is requires on PVC Nico Flow (NH-VV).
 Note: Pressure: 1MPa=10.2 kgf/cm²
 Viscosity: 1mPas=1cp

Reliable Nico Flow Loaded with High-functional Electronic Counter



Electronic Flow Meter for Small Flow Rate

Type **NE**

Electronic flow meter for small flow rate is a flow meter specially designed for small flow rate area, loaded with an electronic indicator-counter on the measuring unit of a rotary piston type positive displacement flow meter. It is loaded with "user setting function" which enables the user to change the setting easily in the field, and can be used for a wide variety of applications. This flow meter is available for measurement control of small flow rates such as process control of additives, control of mixed water, etc.

General Specifications

Figures in parenthesis are for special specification.

Liquid to be measured:	Chemical liquids, food liquids, petroleum, water etc.
Size:	1/4B, 1/2B (Screw type), 1.5A, 2.0A (Flange type)
Liquid viscosity:	0.4~100mPa·s
Liquid temperature:	-5~80°C
Liquid pressure:	Material symbol LS: 1.0Mpa or under Material symbol S2: 2.0~6.3Mpa
Accuracy:	Within ±0.75%

Materials

Main parts	Body	Pressure proof cover	Rotor
LD	DCS14	DCS14	Special carbon, aluminum
S2	SUS316	SUS316	Special carbon, aluminum

Flow Range

Viscosity (mPa·s)	Flow Range (L/h)			
	LD	LM	LL	LG
0.4~	7~50	12~100	15~200	40~600
0.9~	7~50	12~100	15~200	30~600
1~	7~50	8~100	10~200	20~600
5~	2~50	5~100	8~200	15~600
10~100	1~50	2~100	4~200	10~600

Specification of Counting Unit

Counting unit	Pulse & alarm output type	Analogue output type
Flow rate calculation system	Periodical measured flow rate calculation	
Indicator	Numerical indication: 7 segment LCD, SW x 10H 8-digits Mode indication, alarm indication: LCD 2H	
Indication items	Integrated flow rate, momentary flow rate (switched by mode button) • Total integrated flow rate: 8-digits MODE 1 • Momentary flow rate (%): 8-digits MODE 2 or (1/min.): 8-digits MODE 3 • Integrated flow rate (countable): 8-digits MODE 4 • Momentary flow rate (%): 4-digits MODE 5	
Output signal	Pulse signal or alarm signal	4~20mA DC
Internal power	Lithium battery (built-in), service life approx. 3 years	
External power	DC12/24V	DC24V
Ambient temperature	-10~60°C	
Casing material	Aluminum die casting	
Construction	Non-explosion proof, JISCO920 drip proof	

Simplicity in Design and Ease in Maintenance and Check



Small Size Rotary Piston Flow Meter

Types **A, Z, C, H**

This flow meter for small flow measurement is characterized in its structural simplicity. Material can be selected from various options. The structural simplicity facilitates the maintenance and check. The pressure loss is extremely small and even high viscous liquid can be measured with ease. This small size rotary piston flow meter is now used for the measurement and control of liquid in every industry.

General Specifications

Figures in parentheses are for special specification.

Liquid to be measured: Cold and hot water, petroleum, chemical liquids, food liquids etc.
20A, 25A

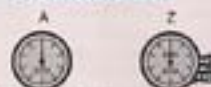
Size: 0.5~3,000mPas (0.2~30,000Pas)
Liquid viscosity: Room temp. -80°C (-20~+200°C)

Liquid temperature: Working pressure - less than 1.0MPa (working pressure - less than 2.0MPa)
Liquid pressure: Within ±0.5%
Accuracy: FC200/CAC406, FC200/FC200, FC200/SCS14, SCS14/SCS14

Material: Material approved of the use for high-pressure gas.

- The size 20mm can not be manufactured for other flow meters than made of FC200/CAC406 (for oil) and SCS14/SCS14 (Material approved of the use for high-pressure gas).

Kind of Direct Totalizer



Direct reading type: Direct totalizing type with setback register

Kind of Pulse Generator

Unit pulse generator (C)

This generator is to be connected with a totalizer, printer, preset counter, etc.
Pulse generator for DA conversion (H)

This generator, when combined with DA converter, can be connected with an indicator, recorder, controller, etc. for analog signal, and with a totalizer, printer, preset counter, etc. for unit pulse signal.

- Explosion-proof and flame-proof type (d, G4) and explosion-proof and intrinsically safe type (ia, G4) are also available.

- As for the connection with the instrument, refer to the "System 1" on page 18.

Flow Range (L/h)

(±0.5%)

Size (mm)	Material	0.5mPas	1mPas	2mPas	5mPas	10mPas	20mPas	100mPas
	Number of capacity	Capacity	Water (Normal temp.)	Capacity	Light oil	4 Heavy oil	5 Heavy oil	C Heavy oil
20	20C	50 - 200	—	40 - 200	20 - 200	25 - 200	10 - 200	5 - 200
	20A	50 - 400	—	50 - 400	50 - 400	60 - 400	20 - 400	10 - 400
25	25C	200 - 800	200 - 800	150 - 800	100 - 800	80 - 800	30 - 800	15 - 800
	25A	200 - 1,000	200 - 1,000	100 - 1,000	120 - 1,000	80 - 1,000	40 - 1,000	20 - 1,000

①: In the flow meter with pulse generator, the minimum flow rate of the symbol of capacity 200 differs somewhat.

Note) Pressure: 1MPa=10.2 kgf/cm²
Viscosity: 1mPas=1cp

Excellent in Durability and Wide in Application Field



Rotary Flow Meter

Types AO, Z8, IO, CN

The positive displacement flow meter has many advantages such as versatility in its application field, high accuracy in measurement with wide-ranged flow rate etc. and is now used widely in every industry. In the range of positive displacement flow meters, the rotary flow meter has a particularly simple structure, and ceramic is used as standard material for the bearings which come in contact with liquid. Besides, a special resin excellent in resistance to chemicals, wear, heat and impact is employed for the rotor. A large-size legible register is used in the direct totalizer. This rotary flow meter is an easy-to-use durable liquid flow meter.

General Specifications

Figures in parentheses are for special specification.
Liquids to be measured: Cold and hot water, petroleum, chemical liquids, food liquids etc.
Size: 25A, 40A, 50A, 80A, 100A
Liquid viscosity: 0.5~500cP (0.2~30,000mPa·s)
Liquid temperature: Normal temp. ~80°C (-20~200°C)
Liquid pressure: Working pressure - less than 1.0MPa (Working pressure - less than 2.0MPa)
Accuracy: Within $\pm 0.5\%$ (within $\pm 0.2\%$)
Material: FC200CAC406, FC200FC200, FC200SCS14, SCS14SCS14

Kind of Direct Totalizer



Direct totaling type: Direct totaling type with direct flow indicate
 Direct totaling type with setback register: Field counter type, pneumatic batch counter

Kind of Pulse Generator

Unit pulse generator
 Unit pulse generator is to be connected with a totalizer, printer, preset counter, etc.
Pulse generator for DA conversion
 This generator, when combined with DA converter can be connected with an indicator, recorder, controller, etc. for analog signal, and with a totalizer, printer, preset counter, etc. for unit pulse signal.
 • Explosion-proof and flame-proof type (Exd I BT4) and explosion-proof and intrinsically safe type (Ia/Ib) are also available.
 • As for the connection with the instrument, refer to the "System 1" on page 11.

Flow Range (L/h)

Size	Symbol or capacity	Flowing condition	Water (Normal temp.)	Hot water (50°C - 120°C)	20cP s ⁻¹		100cP s ⁻¹		500cP s ⁻¹	
					Gasoline	Kerosene	Light oil	A Heavy oil	C Heavy oil	
025	BD	Continuous	500 - 2,500	650 - 2,000	600 - 3,000	500 - 3,000	360 - 3,600	200 - 3,500	170 - 3,500	
	AD	Intermittent	500 - 3,500	650 - 2,500	800 - 4,000	500 - 5,000	360 - 5,900	200 - 5,000	170 - 5,000	
040	BD	Continuous	1,200 - 6,000	1,500 - 4,000	1,500 - 7,500	1,200 - 7,500	850 - 8,400	500 - 8,400	360 - 8,400	
	AD	Intermittent	1,200 - 6,500	1,500 - 4,000	1,500 - 10,000	1,200 - 12,000	850 - 12,900	500 - 12,000	360 - 12,000	
050	BD	Continuous	2,400 - 12,000	3,000 - 9,000	3,000 - 15,000	2,400 - 15,000	1,200 - 17,000	1,000 - 17,000	750 - 17,000	
	AD	Intermittent	2,400 - 17,000	3,000 - 12,000	3,000 - 20,000	2,400 - 24,000	1,200 - 24,000	1,000 - 24,000	750 - 24,000	
080	BD	Continuous	5,000 - 25,000	6,000 - 20,000	6,000 - 30,000	5,000 - 30,000	2,500 - 35,000	2,000 - 35,000	1,500 - 35,000	
	AD	Intermittent	5,000 - 35,000	6,000 - 25,000	6,000 - 40,000	5,000 - 50,000	2,500 - 50,000	2,000 - 50,000	1,500 - 50,000	

Note) Pressure: 1MPa=10.2 kgf/cm²
 Viscosity: 1mPa·s=1cp

(±0.5%)

Positive Displacement Flow Meters Provide Greater Precision and More Functionality



Super Rotary Flow Meter Type **RQ**

We have improved the simple and dependable design of the rotary piston type positive displacement flow meter by adding a microchip to perform the calculation functions. This result is greater precision, improved durability, and applicability to a wider range flow measurement jobs.

Unit of Integrated Indication and Unit of Output Pulse

Symbol of capacity	Minimum unit L, L/P
0100L, 0000L	0.01
0400L, 0004L 0800L, 0008L	0.1
0800L, 1000L	1

General Specifications

Figures in parentheses are for special specification.

Liquids to be measured: Petroleum, chemical liquids, cold and hot water, food liquids etc.

Size: 25A, 40A, 50A, 80A, 100A

Liquid viscosity: 0.5~500mPa·s (0.3~30,000mPa·s)

Liquid temperature: Normal temp. ~80°C

(-10~150°C)

Liquid pressure: Working pressure - less than 1.0MPa (Working pressure

- less than 2.0MPa)

Accuracy: Within ±0.2% (within ±0.5%)

Material: PC200/CAC40K, PC200/FC200

PC200/SCS14, SCS14/SCS14

Display: 7-segment LCD 10H 8-digit

Indicated items: Non-resizable totalizing, instantaneous flow rate (L/h), instantaneous flow rate (L/min), resizable totalizing, instantaneous flow rate (%), alarm for excessive flow, alarm for high flow, alarm for low flow, alarm for battery

Analog signal: 4~20mA DC

Pulse and alarm: Voltage non-contact or

open collector pulse

• Explosion proof type

Field totalizing type: Inhibit safe type

(Exia I BT4X)

Output type: Explosion-proof and flame-proof type (Exia I BT4X)

Flow Range (L/h) (Operating condition: intermittent)

+0.2% (±0.5%)

Size	Symbol of capacity	Viscosity						
		Gasoline	Water	Kerosene	Light oil	A heavy oil	C heavy oil	
025	AO	700 - 1,200 (300 - 1,800)	800 - 1,100 (300 - 1,600)	800 - 1,200 (160 - 1,500)	400 - 1,400 (130 - 1,000)	300 - 1,400 (130 - 1,600)	200 - 1,400 (80 - 1,600)	
	BO	1,100 - 3,500 (400 - 4,000)	840 - 3,500 (250 - 3,000)	800 - 4,000 (250 - 5,000)	420 - 5,000 (250 - 5,000)	250 - 5,000 (140 - 5,000)	210 - 5,000 (120 - 5,000)	
040	BO	2,500 - 8,500 (1,100 - 10,000)	2,100 - 8,500 (840 - 8,500)	3,200 - 10,000 (840 - 12,000)	1,100 - 12,000 (480 - 12,000)	880 - 12,000 (350 - 12,000)	690 - 12,000 (250 - 12,000)	
	AO	4,900 - 17,000 (2,100 - 20,000)	4,200 - 17,000 (1,700 - 17,000)	4,200 - 20,000 (1,700 - 24,000)	2,100 - 24,000 (840 - 24,000)	1,100 - 24,000 (700 - 24,000)	800 - 24,000 (350 - 24,000)	
080	BO	11,000 - 35,000 (4,200 - 40,000)	8,400 - 35,000 (3,500 - 35,000)	8,000 - 40,000 (3,500 - 40,000)	3,500 - 50,000 (1,800 - 40,000)	2,500 - 50,000 (1,400 - 40,000)	2,100 - 50,000 (1,100 - 40,000)	
	AO	11,000 - 35,000 (4,200 - 40,000)	8,400 - 35,000 (3,500 - 35,000)	8,000 - 40,000 (3,500 - 40,000)	3,500 - 50,000 (1,800 - 40,000)	2,500 - 50,000 (1,400 - 40,000)	2,100 - 50,000 (1,100 - 40,000)	

Note) Pressure: 1MPa=10.2 kg/cm²

Viscosity: 1mPa·s=1cp

Getting Easy Handling with New Function and Shape



Floweye (Positive Displacement Flow Meter)

Type **FE**

Flow Range

Viscosity (cP)	Flow Range (L/h)		
	25A	25A	40A
Water	100 - 700	200 - 2100	500 - 4000
0.3 -	130 - 850	260 - 2500	650 - 5000
1 -	100 - 800	200 - 2500	500 - 3000
4 -	70 - 1000	200 - 2000	400 - 3000
10 -	40 - 1000	120 - 2000	300 - 2000
50 -	20 - 1000	70 - 2000	150 - 2000
100 -	10 - 1000	40 - 2000	100 - 2000
500 -	10 - 800	40 - 2400	100 - 2000
1000 -	10 - 600	40 - 1800	100 - 2000
3000 - 10000	10 - 300	40 - 800	100 - 2000

Specifications of Measuring Unit

Measured liquid	Chemical liquid, acidic liquid, petroleum, etc.
Measuring principle	Rotary piston type
Size	25A, 25A, 40A
Viscosity of liquid	0.3 - 10,000cP
Liquid temperature	-10 - 80°C
Liquid pressure	1.0MPa or under
Measuring accuracy	Within ±0.5%
Connection	JS 10K RF flange
Material	Body: SCS14 Rotor: PPS resin Eccentric bearing: Carbon
Min. unit of integrated indicator	25A: 0.01L 25A: 0.1L 40A: 0.1L

Floweye is a flow meter loaded with an electronic indicator-counter on the measuring unit of a rotary piston type of simplest construction among positive displacement flow meters. It is loaded with a "user setting function" which enables the user to change the setting easily in the field and a "viscosity compensating function" enabling adaptation to various kinds of viscous liquid, and can be used for a wide variety of applications.

Specification of Counting Unit

Counting unit	Pulse & alarm output type	Analogue output type	Batch type
Flow rate calculation system	Periodical measured flow rate calculation		
Indicator	Numerical indication: 7-segment LCD, 5V x 10H 8-digits Mode indication, alarm indication: LCD 2H		
Indication items	Integrated flow rate, momentary flow rate (switched by mode button) <ul style="list-style-type: none"> Total integrated flow rate: 8-digits MODE 1 Momentary flow rate (/h): 8-digits MODE 2 or (/min): 8-digits MODE 3 Integrated flow rate (resettable): 8-digits MODE 4 (batch counter when batch type selected) Momentary flow rate (%): 4-digits MODE 5 		
Output signal	Pulse signal or alarm signal	4-20mA DC	Pulse signal or alarm signal
Internal power	Lithium battery (built-in, service life approx. 3 years)		
External power	DC1224V	DC24V	AC100-240V or DC24V
Ambient temperature	-10 - 60°C		
Casing material	Aluminum die casting		
Construction	Non-explosion proof, JISG3020 dip proof	Non-explosion proof, non-oily proof	

Flow Meter for Oil Loaded with High-functional Electronic Counter



Electronic Flow Meter for Oil Type **OE**

Electronic flow meter for oil is a flow meter for oil & non-corrosive liquid realized by loading an electronic indicator-counter on the measuring unit of a rotary piston type positive displacement flow meter. It is loaded with a "user setting function" which enables the user to change the setting easily in the field, and can be used for a wide variety of applications. The flow meter is available for measurement and control of feed oil to boilers, fuel oil, non-corrosive medium and high-viscosity liquid, etc.

General Specifications

Figures in parentheses are for special specification.

Liquid to be measured: Kerosene, light oil, A B C heavy oil, non-corrosive medium and high-viscosity liquid
 Size: 20A, 25A, 40A
 Liquid viscosity: 2~1000mPas
 Liquid temperature: 0~80°C (120°C for high-temperature specification)
 Liquid pressure: Less than 1.0Mpa
 Accuracy: Within $\pm 0.5\%$
 Connection: JIS 10K FF flange
 Materials: Body: FC200
 Rotor: AC2A
 Eccentric bearing: C3604B0

Flow Range

Viscosity (mPa·s)	Nominal diameter				
	20B	30M	20L	25L	40L
2~	40~200	60~400	100~1000	250~2500	600~6000
10~	30~200	40~400	50~1000	100~2500	250~6000
50~	20~200	25~400	40~1000	60~2500	150~6000
100~	10~200	15~400	20~1000	40~2500	100~6000
500~1000	10~180	15~320	20~800	40~2000	100~4800

Specification of Counting Unit

Counting unit	Pulse & alarm output type	Analogic output type	Batch type
Flow rate calculation system	Periodical measured flow rate calculation		
Indicator	Numerical indication; 7-segment LCD, 5W x 10H 8-digits Mode indication, alarm indication: LCD 2H		
Indication items	Integrated flow rate, momentary flow rate (switched by mode button)		
	● Total integrated flow rate	8-digits MODE 1	
	● Momentary flow rate (/h) or (/min)	8-digits MODE 2 8-digits MODE 3	
	● Integrated flow rate (resettable)	8-digits MODE 4 (Batch counter when batch type selected)	
Output signal	Pulse signal or alarm signal	4~20mA DC	Pulse signal or alarm signal, measurement signal
Internal power	Lithium battery (built in), service life approx. 3 years		
External power	DC120V	DC24V	AC100~240V or DC24V
Ambient temperature	-10~60°C		
Casing material	Aluminum die casting		
Construction	Non-explosion proof, JISCOMD drip proof		Non-explosion proof, non-drip proof

Compact and Low-cost Flow Meter Exclusive for Oils

Small in Size, Light in Weight and Outstanding Easiness in Operation



Micro Oil Meter Type **RE10LF**

Liquid crystal counter is adopted in the display section. This oil flow meter designed compact is a quite new type flow meter exclusive for the measurement of oils. It has a flow range as wide as 1:125 (for heavy oil). The minimum flow rate of 2L/h (for heavy oil) makes this meter super-sensitive.

General Specifications

Liquids to be measured: Kerosene, light oil and heavy oil
Size: 38B
Liquid temp.: Body & counter-incorporated type: -10~+55°C
 Body & counter separate type: -10~+120°C
Liquid press.: Working press. - less than 0.7MPa
Accuracy: Within $\pm 1.0\%$
Material: ADC + surface treatment
Flow range: Kerosene: 10~250 L/h
 Heavy oil: 2~250 L/h

Note) Pressure: 1MPa=10.2 kgf/cm²
 Viscosity: 1mPa s=1cp

Oil Meter Type **BR**

A high performance oil meter which realizes smallness in size, lightness in weight and easiness in operation is used for the measurement of fuel oil (for small boiler, burner, central heating) in heat piping industry.

General Specifications

Liquids to be measured: Kerosene, light oil and heavy oil
 (Two types of oils can be measured by one meter)
Size: 15A, 20A, 25A
Liquid temp.: Normal temp. - 80°C
Liquid press.: Working press. - less than 0.7MPa
Accuracy: Within $\pm 0.5\%$
Material: FC200
Pulse generator: Reed switch (Option): 1 L/p

Flow Range (L/h) (±0.5%)

Model	Size (mm)	Flow range (L/h)	
		Kerosene	Heavy oil
BR15-3	15	30 - 200	10 - 200
BR20-2	20	100 - 1,000	30 - 1,000
BR25-2	25	250 - 2,500	150 - 2,500

Note) Pressure: 1MPa=10.2 kgf/cm²
 Viscosity: 1mPa s=1cp

Stable Performance Attained for Small to Large Flows



Slide Vane Flow Meter

Types AO, Z8, IO, CN

This flow meter is a large capacity flow meter whose measuring section employs an outer-cam type slide vane. It solves problems of noise vibration and pulsation often seen in large-size flow meter, and exerts a stable performance for small to large flows. It is used widely in the fields of petrochemical refinement, chemicals, foods, power generation and ship-building.

General Specifications

Figures in parentheses are for special specification.

Liquids to be measured: Cold and hot water, petroleum, chemical liquids, food liquids etc.

Size: 80A, 100A, 150A
Liquid viscosity: 0.4~500mPa·s
Liquid temperature: Normal temp. ~80°C (0~120°C)
Liquid pressure: Working pressure - less than 1.0MPa (Working pressure - less than 2.0MPa)

Accuracy: Within $\pm 0.5\%$ (within $\pm 0.2\%$)

Material: FC200/FC200, SCS13/SCS13

Flow Range (m³/h)

($\pm 0.5\%$)

Size	Capacity of capacity	Measuring section	Heavy liquids	Water (Normal temp.)				
				10~30	12~60	10~90	8~80	5~60
200	B	Continuous	10~80	12~60	10~90	8~80	5~60	3~60
				12~60	10~100	8~100	5~100	3~80
100	B	Continuous	20~100	24~100	20~160	16~160	10~160	5~120
				24~100	20~200	16~200	10~200	5~150
150	A	Intermittent	20~100	24~100	20~200	16~200	10~200	5~150
				24~100	20~200	16~200	10~200	5~150

Kind of Direct Totalizer

AO 	Z8 	IO 	CN 
Direct totalizing type	Direct totalizing type with setback register	Direct totalizing type with instant flow indicator	Field counter type pneumatic batch counter

Kind of Pulse Generator

Unit pulse generator - This pulse generator is to be connected with a totalizer, printer, preset counter, etc.

Pulse generator for DA conversion - This pulse generator, when combined with DA converter, can be connected with an indicator, recorder, controller, etc. for analog signal, and with a totalizer, printer, preset counter, etc. for unit pulse signal.

•Explosion-proof and flame-proof type (Exd IIBT4) and explosion-proof and intrinsically safe type (IaIaG4) are also available.

•As for the connection with the instrument, refer to the "System 1" on page 18.

Note) Pressure: 1MPa=10.2 kgf/cm²

Viscosity: 1mPa·s=1cp

Excellent Durability and Easiness of maintenance Proven by Numerous Results



Turbine Flow Meter

Types **KA, KZ, KI**

This flow meter is an axial-flow fan wheel type flow meter excellent in durability and easiness of maintenance proven by numerous results. It is widely used for the water controls in every industry, such as water control of water supply sources, various plants, air conditioning in the building, etc.

General Specifications

Figures in parenthesis are for special specification

Liquids to be measured: Cold and hot water, and seawater

Size: 50A, 80A, 100A, 125A
150A, 200A, 250A
300A, 350A, 400A

Liquid temperature: Normal temp. ~80°C(0~150°C)

Liquid pressure: Working press. — less than 1.0MPa
(Working press. — less than 2.0MPa)

Accuracy: Within ±2.0%

Material: FC200/CAC406,
FC200/SCS13,
SCS13/SCS13

Flow range (m³/h) (±2.0%)

Size (mm)	Flow Range
50	4 ~ 25
80	8 ~ 50
100	10 ~ 80
125	15 ~ 120
150	20 ~ 150
200	30 ~ 250
250	40 ~ 300
300	60 ~ 450
350	100 ~ 650
400	150 ~ 1,000

Kind of Direct Totalizer



Direct totalizing type



Direct totalizing type with setback counter



Direct totalizing type with instant flow indicator

Kind of Pulse Generator

Unit pulse generator..... This pulse generator is to be connected with a totalizer, printer, preset counter, etc.

Pulse generator for..... This pulse generator, when combined with DA converter, can be connected with an indicator, recorder, controller, etc. for analog signal, and with a totalizer, printer, preset counter, etc. for pulse signal.

- Explosion-proof and flame-proof type (d2 G4) is also available.
- As for the connection with the instrument, refer to "System 1" on page18.

Note) Pressure: 1MPa = 10.2 kgf/cm²

Loaded with Electronic Counter Enhancing Workability in the Field



Electronic Flow Meter for Water Supply

Type **AE**

Electronic flow meter for water supply is a flow meter for water realized by loading an electronic indicator-counter on the measuring unit of an impeller type flow meter for water. It is equipped with a "user setting function" which enables the user to change the setting easily in the field, and can be used for a wide variety of applications. This flow meter is available for measurement and control of cold water and hot water such as cooling/heating water, feed water to boilers, service water for various plants, etc.

General Specifications

Figures in parenthesis are for special specification.

Liquid to be measured: Cold water, hot water (Inquire in the case of a liquid containing acid or alkali contents.)
 Size: 25A, 40A, 50A
 Liquid viscosity: 1mPa·s or equivalent
 Liquid temperature: 0~80°C (110°C for high-temperature specification)
 Liquid pressure: Less than 1.0MPa (less than 2.0MPa)
 Accuracy: Within $\pm 1.0\%$
 Connection: JS 10K FF flange (JIS20K)

Materials

Material symbol	FD	F7	ST
Body	FCD400	FCD400	SC113
Measuring chamber	SCS1311	SCS1311	SCS13
Impeller	CS191P	SUG304	SUG304

Note: Range of products of size 50B is only F7 and F7 type.
 *1 Material of size 50B is SAC40B. *2 Material of size 50B is SUG304.

Flow Range (m³/h)

Nominal dia.	Flow range
25A	0.5 ~ 2.5
35B	1.0 ~ 5.0
40A	1.5 ~ 7.0
40B	3.0 ~ 15.0
50A	3.0 ~ 15.0
50B	6.0 ~ 25.0

Specification of Counting Unit

Counting unit	Pulse & alarm output type	Analogue output type	Batch type
Flow rate calculation system	Periodical measured flow rate calculation		
Indicator	Numerical indication: 7-segment LCD, 4W x 10H 8-digits Mode indication, alarm indication: LCD 2H		
Indication items	Integrated flow rate, momentary flow rate (switched by mode buffer) ● Total integrated flow rate: 8-digits MODE 1 ● Momentary flow rate (RS): 6-digits MODE 2 or (RHS): 6-digits MODE 3 ● Integrated flow rate (resettable): 8-digits MODE 4 (Batch counter when batch type selected) ● Momentary flow rate (%): 4-digits MODE 5		
Output signal	Pulse signal or alarm signal	4~20mA DC	Pulse signal or alarm signal, measurement signal
Internal power	Lithium battery (built-in), service life approx. 3 years		
External power	DC12-24V	DC24V	AC100-240V or DC24V
Ambient temperature	-10 ~ 60°C		
Casting material	Aluminum die casting		
Construction	Non-explosion proof, JISCO805 die proof		Non-explosion proof, sand-blast proof

Widely Used for Cold, Hot and High-temperature Water.



Cold & Hot Water Meter

Types BF, BFZ

This flow meter has realized high accuracy and lightness in weight required for the measurement and control of cold, hot and high-temperature water used as industrial water for air conditioning, water supply to boiler, chemical plant, water treatment plant. It is a tangential fan wheel type flow meter being used in many fields of application.

General Specifications

Figures in parenthesis are for special specification

Liquids to be measured: Cold water, hot water and high-temperature water

Size: 25A, 40A, 50A
Liquid temperature: Normal temp. -- 110°C for general use
 110 ~ 200°C for high-temperature water

Liquid pressure: Working press. -- less than 1.0MPa
 (Working press. -- less than 2.0MPa)

Accuracy: Within $\pm 1.0\%$
Material: FCD450/CAC100,
 FCD450/SCS13,
 SCS13/SCS13

Flow Range (m³/h)

($\pm 1.0\%$)

Symbol of capacity	General use	High-temp. water
25A	0.5 ~ 2.5	0.5 ~ 1.5
25B	1.0 ~ 5.0	1.0 ~ 3.0
40A	1.5 ~ 7.0	1.5 ~ 4.5
40B	3.0 ~ 15.0	3.0 ~ 9.0
50A	3.0 ~ 15.0	3.0 ~ 9.0
50B	6.0 ~ 25.0	6.0 ~ 18.0

Kind of Direct Totalizer



Direct totaling type



Direct totaling type with setback register

Kind of Pulse Generator

Unit pulse generator ----- This pulse generator is to be connected with a totalizer, printer, preset counter, etc.

Pulse generator for DA conversion ----- This pulse generator, when combined with DA converter, can be connected with an indicator, recorder, controller, etc. for analog signal, and with a totalizer, printer, preset counter, etc. for pulse signal.

• Explosion-proof and flame-proof type (D2G4) is also available.

• As for the connection with the instrument, refer to "System 1" on page 18.

Note) Pressure: 1MPa=10.2 kgf/cm²

NITTO SEIKO's Flow Meters Enhance the System Quality and Realize More Sophisticated Liquid Control.



Field Counter Type Pneumatic Batch Counter RSCN

Vortex Type Flow Sensor FLOP

Field Counter Type Pneumatic Batch Counter

Type **RSCN**

This batch counter which is equipped with a mechanical preset counter and total counter enables you to do on-site batch counting simply by adding a pneumatic valve. The batch can be set as desired by the preset button. The valve closes automatically when the flow volume reaches the preset batch. Since this counter is actuated by pneumatic signal alone, it can be used safely in a place where the explosion-proof structure is required.

Vortex Type Flow Sensor FLOP

Type **QS**

Vortex type flow sensor FLOP is a flow sensor based on the principle of Karman's vortex. Realized with a simple construction without any moving part or liquid stay portion, this flow sensor is capable of high-accuracy flow rate measurement and has excellent durability. By adopting linear type PPS resin for the wetted part, this sensor can be used not only for cold water and hot water but also for super pure water and various kinds of chemical products.

General Specifications

Liquid to be measured:	Various kinds of water (1MPa-s or equivalent)
Capacity symbol:	10, 15, 20, 25, 40
Liquid temperature:	0~90°C
Liquid pressure:	Less than 1.0Mpa
Accuracy:	±2% FS
Indicating function:	Total, instantaneous flow rate

Flow range (L/min)

Capacity symbol	Flow range
05	0.5~5
10	4~25
15	6~50
20	12~60
25	20~130
40	60~350

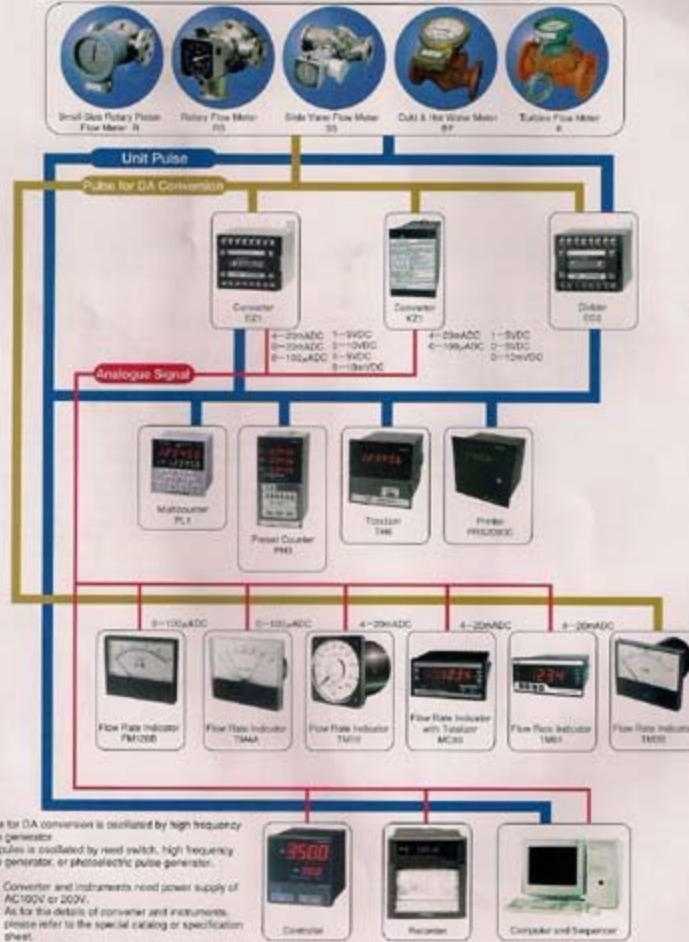
Analogical signal output type (4~20mADC) is also available.

NITTO SEIKO's Liquid Control System Has Realized the Sophistication and Rationalization of the Flow Control, Such As Remote-Controlled Measurement.

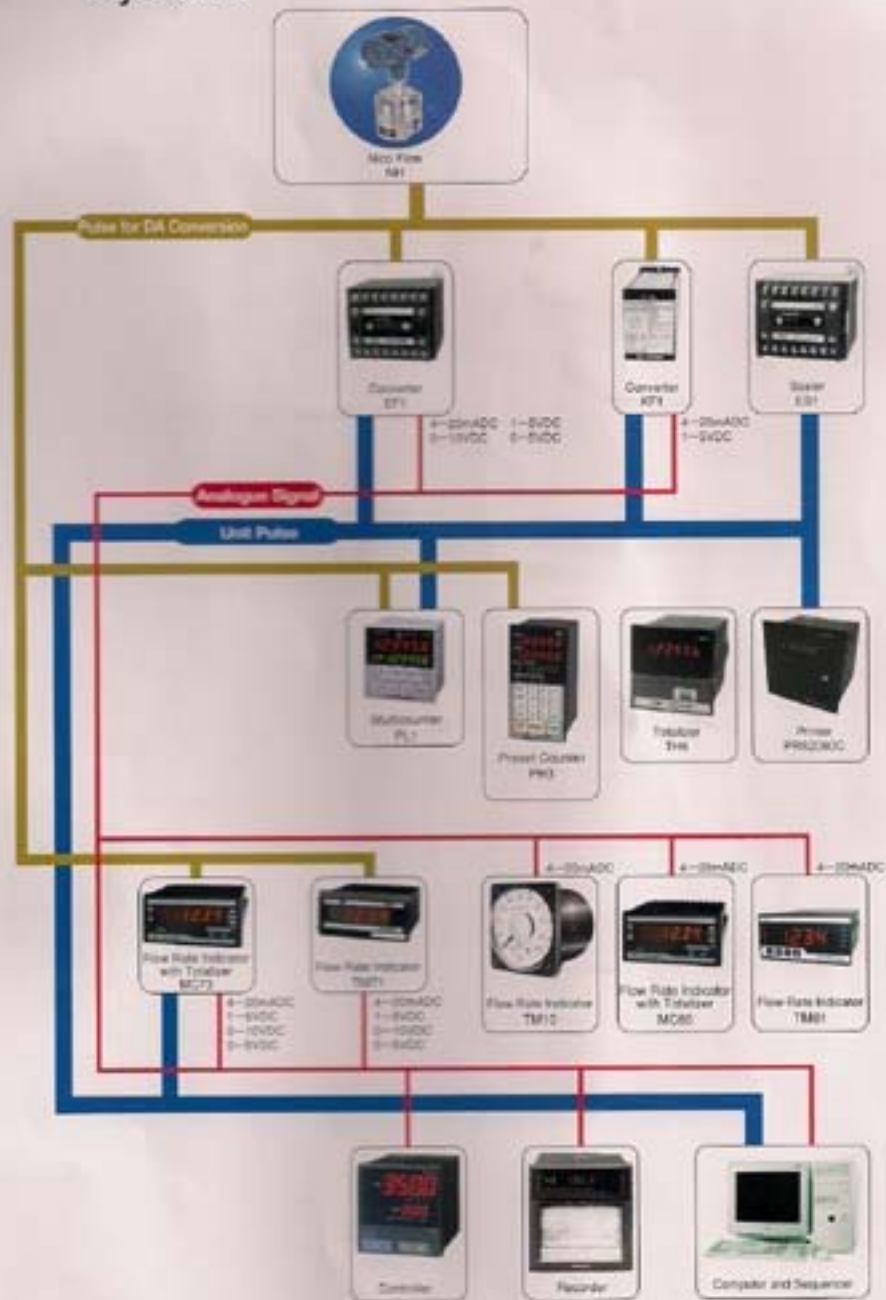
NITTO SEIKO's flow meters, when equipped with pulse generators or combined with various converters or instruments, can be easily modified into remote-controlled flow measurement systems. As shown in the chart, the system can be upgraded in various ways depending on the kind of pulse generator. Select the most suitable system according to the application and purpose of use.

NITTO SEIKO's remote-controlled flow measurement systems will promote the sophistication and rationalization of flow control work.

System 1



System 2



Note 1. Converter and instruments need power supply of AC100V or 200V.
 2. As for the details of converter and instruments, please refer to the special catalog or specification sheet.

Design and specification are subject to change without notice.

ROTOMECH

C-401, Saraswati
Suchidham Complex
Malad (E), Mumbai - 400097.
Ph: 022-65706705
Mob: 09869473133

Printed in Japan

For more information contact



NITTO SEIKO CO., LTD.

OSAKA BRANCH
1-85, Horijoshi, Higashi-ku, OSAKA
538-0802 JAPAN
Telephone (81)6745-8384
Telex (81)745-0370
E-mail: osaka@nitto.co.jp
<http://www.nitto.co.jp>

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