



Turbine flowmeter for cold water and hot water

# ME METER

MODEL: NEW COSMOS Series

## ■ GENERAL

The ME meter is an axial flow impeller type flowmeter coupled with a direct reading register.

Its desirable performance and unique design make this meter a valuable tool in cold water metering applications, including city water and industrial water. A model for hot water services is also suitable for heat control and energy saving in boiler feed and drain recovery applications.

## ■ FEATURES

1. Wide flowrange 400:1 max. 200:1 min.
2. Register assembly is hermetically sealed against the flow – with the reduction gear train isolated from contact with the liquid – to ensure long service life.
3. A contact type pulse generator for remote totalization of flow or a non contact type pulse generator for remote totalization of flow and instantaneous flowrate indication/recording is provided. They are inserted into the register and can easily be taken off.
4. Sensitive to small flowrate and wide flowrange with small pressure loss.
5. A choice of two version – for cold water services (10 models) and hot water services (10 models). Outline dimensions remain the same between meters of the same size.



## ■ GENERAL SPECIFICATIONS

### ● Meter Body

Item	Acceptable Fluid	Cold Water Service	Hot Water Service
	Nominal Size		40,50, 65, 80, 100, 125, 150, 200, 250, 300mm
Flange Rating		JIS 10 K RF or ANSI 150 RF	
Max. Operating Pressure		1 MPa	
Operating Temperature Range		0 to 50°C	0 to 130°C
Materials	Cover	Polyacetal resin	
	Case	Cast iron (Powder coated finish all over)	
	Internal Elements	Plastics, Stainless Steel	Heat-resistant resin, Stainless Steel
Register		Counter drum + Pointer	
Finish		Blue color	Red color
Accuracy		Within ±2%. Within ±5% at lower measuring limit.	
Mounting Position		Free except downward	

### ● Pulse Generator

Item	Acceptable	Totalization		Indication/Totalization	
		Cold Water	Hot Water	Cold Water	Hot Water
Pulse Generator Model		Reed RD 01	Reed RD 02	Opto OD 01	Opto OD 02
Signal Generation		Contact closure (reed switch)		Non-contact (Opto-electric switch)	
Ambient Temperature		Max 50°C	Max 130°C	Max 50°C	Max 130°C
Construction		Plug-in type, cable 3-meter long furnish. Connection: 2 wire (Non polarity)		Plug-in type, cable 3-meter long furnish. Connection: 2 wire (brown: + white: -)	
Law Compliance		IP68 (JIS C 0920, Under water and equivalent)		IP68 (JIS C 0920, Under water and equivalent)	
Electrical Specification		Voltage across contacts: 48 VDC Max. Current across contacts: 0.2 ADC Max. Contact capacity: 4W Max. ON/OFF ratio: ≈ 1/10 A resistor (50Ω) for protection of rush current and a varistor for clamping of surge voltage (clamp voltage: 60V) are provided.		Power supply: 5.5 to 13VDC ※ Output levels: "1" = 3V Min. "0" = 1V Max. with Power supply 8.5VDC, 1000Ω load resistance Current drain: 6mA Max. ON/OFF ratio: ≈ 1/1 ("0"/"1")	
Transmission Distance		1km Max. with 0.75 to 2.0mm <sup>2</sup> 2 cored shield cable		1km Max. with 0.75 to 2.0mm <sup>2</sup> 2 cored shield cable	

※1 : Each pulse generator can be installed for every size of the meter.

※2 : "ON" of the contact in Reed RD 01/02 may be kept during interruption of the meter. Thus, it is recommended to use a totalizing counter with power charged.

※ : Refer to the diagram shown in P 4.

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**FLOW RANGES**

● For Cold Water

(Unit in m<sup>3</sup>/h)

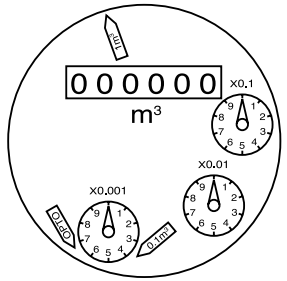
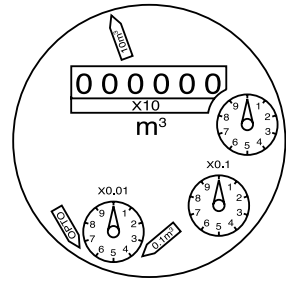
Nominal Size mm	Starting Flowrate	±5% Lower Limit Qmin.	±2% Lower Limit Qt	Normal Max. Flowrate Qn	Max. Flowrate Qmax.
40	0.15	0.30	0.80	40	60
50	0.15	0.30	0.70	50	90
65	0.20	0.40	0.80	70	120
80	0.25	0.50	0.80	120	200
100	0.25	0.80	1.80	230	300
125	0.50	1.8	2.0	250	350
150	1.0	2.0	4.0	450	600
200	1.5	4.0	6.0	800	1200
250	3.0	6.0	11.0	1250	1600
300	8.0	12.0	15.0	1400	2000

● For Hot Water

(Unit in m<sup>3</sup>/h)

Nominal Size mm	Starting Flowrate	±5% Lower Limit Qmin.	±2% Lower Limit Qt	Normal Max. Flowrate Qn	Max. Flowrate Qmax.
40	0.25	0.60	1.8	10	20
50	0.25	0.60	1.8	15	30
65	0.30	1.0	2.0	25	60
80	0.35	1.4	3.2	45	90
100	0.60	2.0	4.8	70	140
125	1.1	3.5	8.0	100	200
150	1.7	4.5	12.0	150	300
200	2.0	8.0	20.0	250	500
250	10.0	25.0	45.0	500	1000
300	15.0	15.0	50.0	600	1200

● Registration

<p>Nominal Size 40 to 125mm</p>  <p>Min. Scale: 1L Max. Quantity of indication: 1,000,000m<sup>3</sup></p>	<p>Nominal Size 150 to 300mm</p>  <p>Min. Scale: 1L Max. Quantity of indication: 1,000,000m<sup>3</sup></p>
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**OUTPUT OF PULSE GENERATOR**

● For Cold Water

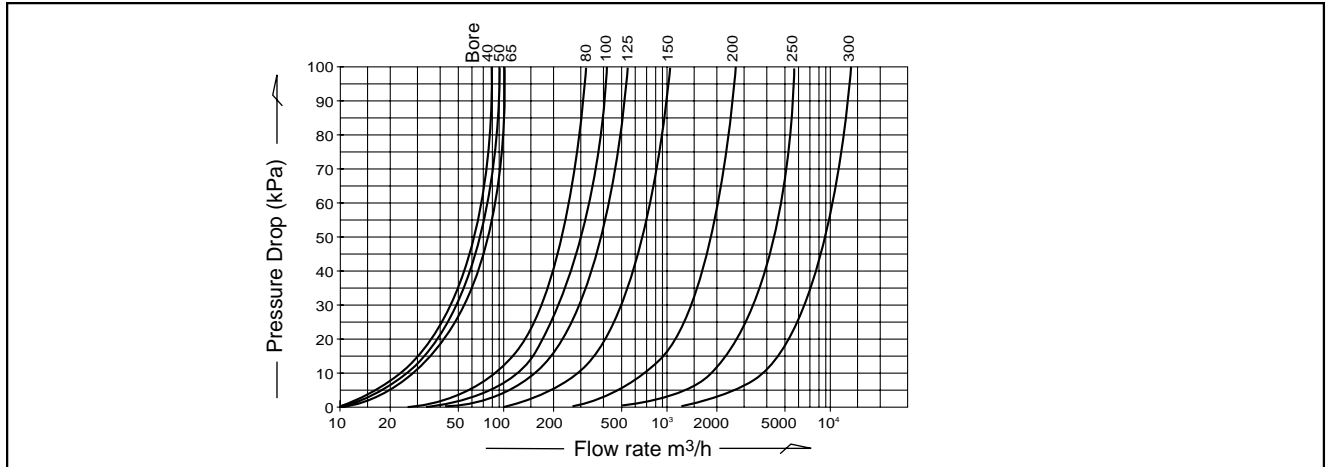
Nominal Size mm	Max. Flow m <sup>3</sup> /h	Totalization (Reed RD 01)		Indication & Totalization (Opto OD 01)	
		Pulse Unit m <sup>3</sup> /P	Frequency at Max. Flow Hz	Pulse Unit m <sup>3</sup> /P	Frequency at Max. Flow Hz
40	60	0.1	0.17	0.001	16.67
50	90		25.00		
65	120		33.33		
80	200		55.56		
100	300		83.33		
125	350		97.22		
150	600	1	0.17	0.01	16.67
200	1200		33.33		
250	1600		44.44		
300	2000		55.56		

● For Hot Water

Nominal Size mm	Max. Flow m <sup>3</sup> /h	Totalization (Reed RD 02)		Indication & Totalization (Opto OD 02)	
		Pulse Unit m <sup>3</sup> /P	Frequency at Max. Flow Hz	Pulse Unit m <sup>3</sup> /P	Frequency at Max. Flow Hz
40	20	0.1	0.06	0.001	5.56
50	30		8.33		
65	60		16.67		
80	90		25.00		
100	140		38.89		
125	200		55.56		
150	300	1	0.08	0.01	8.33
200	500		13.89		
250	1000		27.78		
300	1200		33.33		

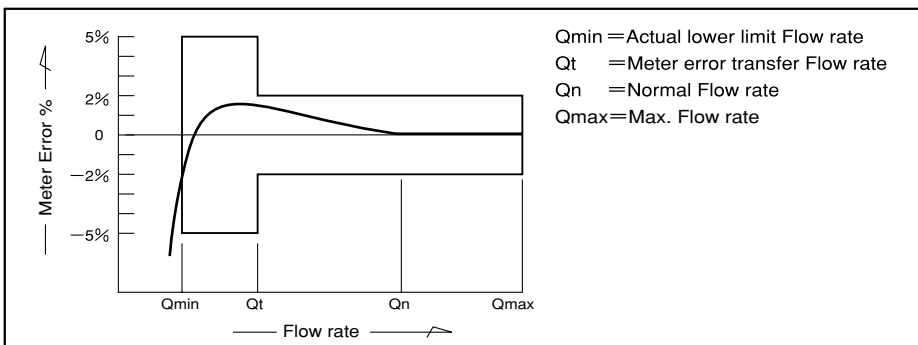
## ■ PERFORMANCE CHARACTERISTICS

### ● Pressure Drop

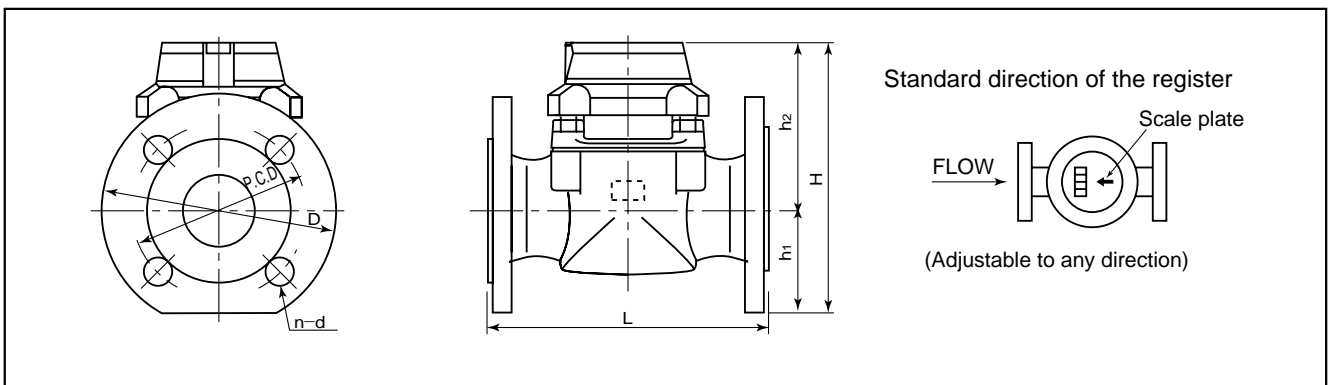


### ● Accuracy

Within  $\pm 2\%$  of Reading  
 Lower limit zone:  $\pm 5\%$



## ■ DIMENSIONS



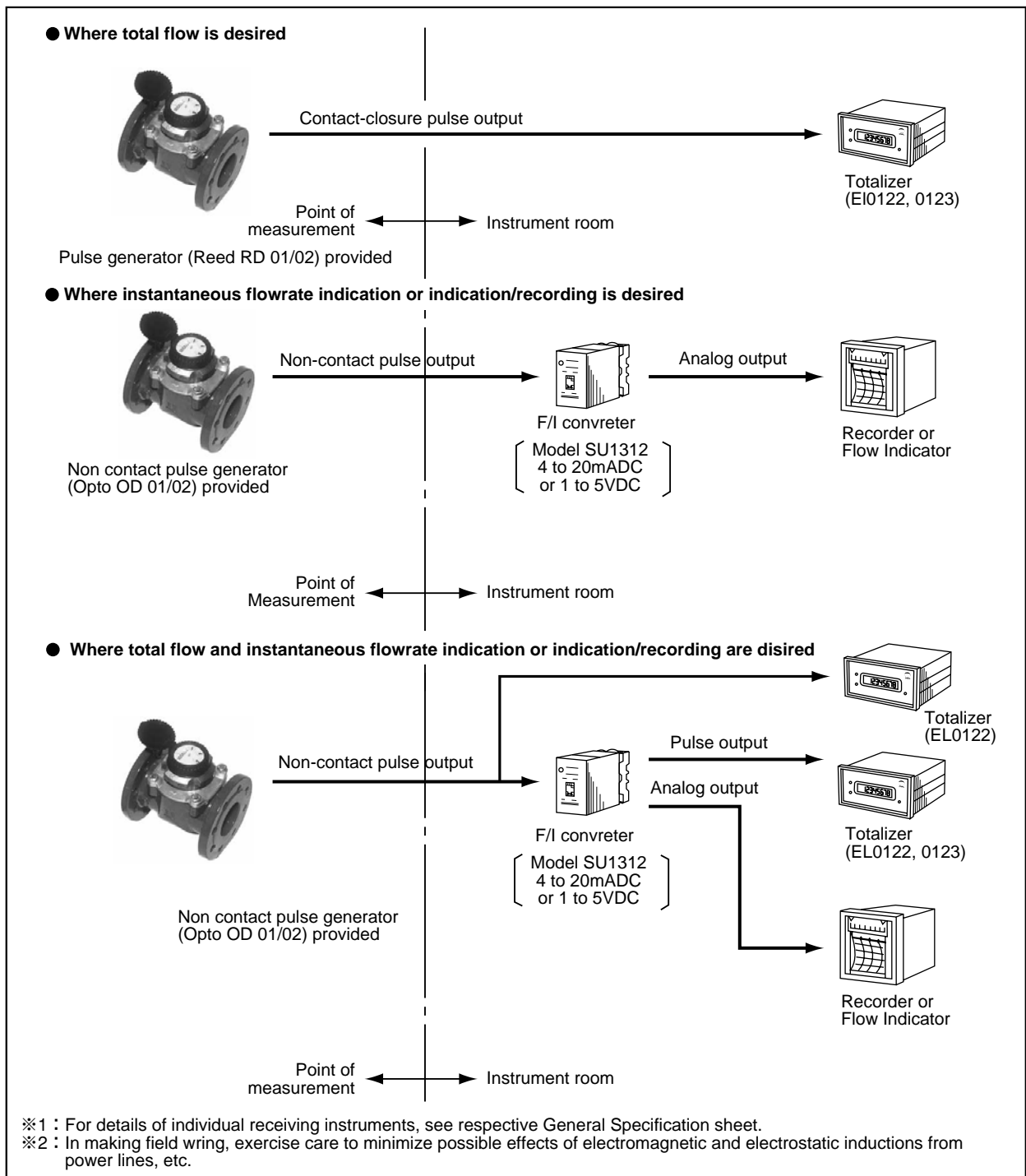
JIS 10K Flange, ANSI 150 Flange

Unit: mm

Nominal Size	L	H	h <sub>1</sub>	h <sub>2</sub>	D	ANSI 10K Equivalent		ANSI 150K Equivalent		Weight kg Approx.
						P.C.D.	n-d	P.C.D.	n-d	
40	220	189	69	120	150	105	4-19	98.4	4-15.7	7.4
50	200	193	73	120	165	120	4-19	120.7	4-19.1	7.7
65	200	205	85	120	186	140	4-19	139.7	4-19.1	10.0
80	225	245	95	150	200	150	8-19	152.4	4-19.1	14.0
100	250	255	105	150	225	175	8-19	190.5	8-19.1	18.0
125	250	278	118	160	252	210	8-23	215.9	8-22.2	20.5
150	300	312	135	177	285	240	8-23	241.3	8-22.2	35.5
200	350	368	162	206	340	290	12-23	298.5	8-22.2	50.5
250	450	425	194	231	405	355	12-25	362.0	12-25.4	72.3
300	500	482	226	256	475	400	16-25	431.8	12-25.4	99.3

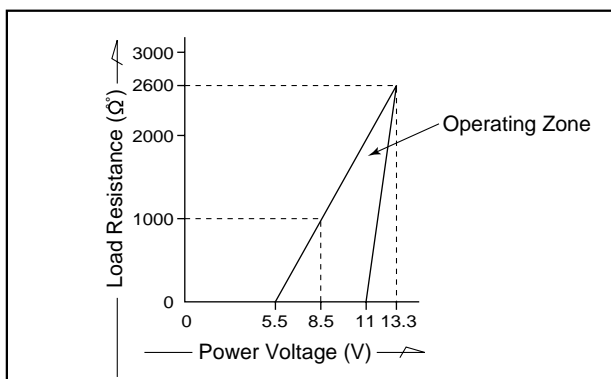
※ : External sizing of Flange is not based on Flange rule.

**REMOTE FLOW MEASUREMENT SYSTEM**



**● Loading Resistance Zone and Output Level of Non Contact Pulse Generator (Opto OD 01, 02)**

1 Operating Zone of Load Resistance



2 Output Level

$$[0] = 0.9 \times 10^{-3} \times R_L [V]$$

$$[1] = \frac{R_L(2.34+E)}{2.6 \times 10^3 + R_L} [V]$$

R<sub>L</sub>: Load Resistance [Ω]  
 E : Power Voltage [V]



**■ STRAINER**

**Flange Rule:** JIS 10K FF

**Max. Pressure:** 1MPa

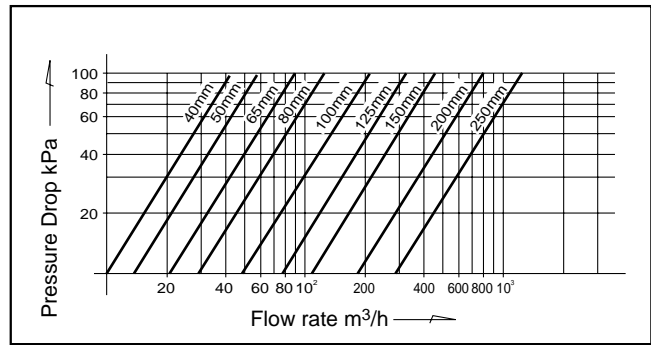
**Max. Temperature:** 70°C

**Material:** Body 40 to 250 mm—Cast iron (FC200)

**Net:** 30 mesh (STD)

Material—Stainless steel (SUS304)

**● Pressure Drop Curve**



**● Dimensions**

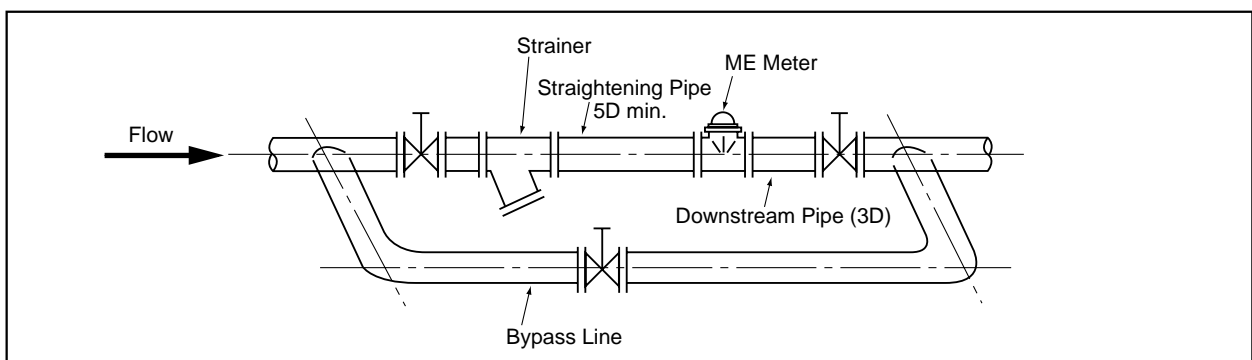
**Nominal Size : 40 to 250mm**

Unit in mm						
Model	d	L	Y	A	B	Weight kg
IMY-3-A-040	40	195	100	45	90	6.8
IMY-3-A-050	50	225	160	58	126	10.0
IMY-3-A-065	65	265	175	72	153	14.0
IMY-3-A-080	80	300	190	86	171	18.7
IMY-3-A-100	100	350	220	106	199	27.2
IMY-3-A-125	125	400	285	135	247	41.0
IMY-3-A-150	150	460	345	160	306	65.6
IMY-3-A-200	200	550	420	210	349	150.0
IMY-3-A-250	250	690	515	262	453	192.0

※ : If standard specifications for Y-shape strainers above are not satisfactory, see OVAL products data sheets for U-shape strainers (GS. No. GCB002 and GCB003).

**■ STANDARD PIPING INSTRUCTION**

1. Installation of Straight pipe, longer than 5D in upper stream and 3D in down stream of a meter is required. (D: Bore size of a meter)
2. In case any instruments and pipe connector by which turbulence might be produced, make straight piping as long as possible and also install flow rate control valve at down stream of a meter.
3. In case some foreign material, rough floating substance and solid could be contained in metering stream, installation of a strainer just upsides of a meter shall be needed.
4. A bypass line for a metering line shown below makes maintenance work convenient and easy.
5. Vertical installation of a meter is also acceptable.



## MODEL CODE NUMBER

Item	Code No.									Description	
	①	②	③	④	⑤	⑥	⑦	—	⑧		⑨
Model	M	E									ME Meter
Nominal Size	0	4	0								40mm (1 1/2")
	0	5	0								50mm (2")
	0	6	5								65mm (2 1/2")
	0	8	0								80mm (3")
	1	0	0								100mm (4")
	1	2	5								125mm (5")
	1	5	0								150mm (6")
	2	0	0								200mm (8")
	2	5	0								250mm (10")
3	0	0								300mm (12")	
Application	C										Cold water (Max. 50°C)
	H										Hot water (Max. 130°C)
Flange Rule	J		—								JIS 10 K RF equivalent
	A		—								ANSI 150 RF equivalent
Direct Coupled Register									3		Totalizing Counter
Pulse Generator									0		Direct Coupled Register only
									3		Reed RD 01 (Cold water) or Reed RD 02 (Hot water): Contact pulse
									4		Opto OD 01 (Cold water) or Opto OD 02 (Hot water): Non Contact pulse
									5		Both Reed RDOO and Opto ODOO are installed

## When making inquiries, please advise the following: (fill in the blanks or check with mark)

1. Application	_____
2. Liquid to be metered	_____
3. Flow range	Max. _____ Normal _____ Min. _____ m <sup>3</sup> /h
4. Piping connection bore	_____ mm _____"
5. Fluid temperature	Max. _____ Normal _____ Min. _____ °C
6. Fluid pressure	Max. _____ Normal _____ Min. _____ MPa
7. Density or sp. gr.	Density _____ kg/cm <sup>3</sup> Sp. gr. _____
8. Flange rating	<input type="checkbox"/> JIS 10K <input type="checkbox"/> ANSI 150
9. Installation	<input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical
10. Flow straightening pipe	<input type="checkbox"/> Required <input type="checkbox"/> Not required
11. Strainer	<input type="checkbox"/> Required <input type="checkbox"/> Not required
12. Pulse generator	<input type="checkbox"/> Required For cold water <input type="checkbox"/> REED01 <input type="checkbox"/> OPTO01 For hot water <input type="checkbox"/> REED02 <input type="checkbox"/> OPTO02 <input type="checkbox"/> Not required
13. Output	<input type="checkbox"/> Pulse output ( <input type="checkbox"/> Contact <input type="checkbox"/> Non-contact) <input type="checkbox"/> Analog output ( <input type="checkbox"/> Current _____ to _____ A DC <input type="checkbox"/> Voltage _____ to _____ V DC)
14. Receiving instrument	<input type="checkbox"/> Totalizer <input type="checkbox"/> Flow indicator } (Full Scale _____ to _____ m <sup>3</sup> /h) <input type="checkbox"/> Others <input type="checkbox"/> Converter <input type="checkbox"/> Recorder } Companion instrument specs.: model, manufacturer, power source, input spec., output spec., etc.
15. Other informations	Basic meter to receiving instrument distance, installation location, etc.

The specification as of Dec.,2008 is stated in this GS Sheet. Specifications and design are subject to change without notice.

Sales Representative:

GS.No.GBT203E

初版	改訂	印刷
99.03	08.12	

**asit**  
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