



Inexpensive Microflow Coriolis Flowmeter

CoriMate II

MODEL: CR002, CR003, CR004

GENERAL SPECIFICATION
GS.No.GBN064E-4



■ GENERAL

Based on the OVAL's unique Coriolis technology, CoriMate II is a compact integral-mount type flowmeter with a built-in transmitter and display. A remote-mount type flowmeter with a separate transmitter and easy sensor installation is also available.

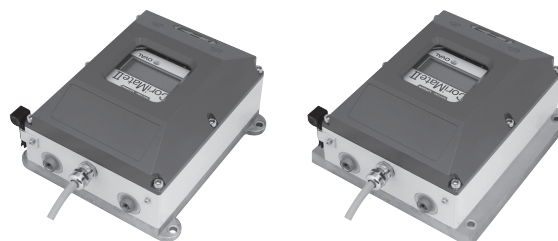
It is a non-explosionproof type OVAL Coriolis flowmeter that is inexpensive and has high safety and specializes in high-accuracy microflow measurement.

■ FEATURES

1. Inexpensive Coriolis flowmeter
2. Available from integral or remote-mount structure
3. Vibration isolated table is not required
4. Easy to install and handle
5. Wetted parts material is equivalent to SUS316L
6. Flow range: 2.5 to 2700g/min (3 models)

■ TYPICAL APPLICATIONS

1. Mass flow measurement
2. Measurement of multiple kinds of liquid at laboratories or research facilities
3. Medicinal solution, solvent process
4. Slurry liquid, mixture process
5. Paint, spray, additive applications



CR002/CR003

CR004



Remote-mount type

■ GENERAL SPECIFICATIONS (Integral-mount)

Item		Description		
Model		CR002	CR003	CR004
Nominal Size		0.7mm	1.5mm	3mm
Materials	Wetted parts	SUS316L and SCS16A (※1)		
	Base	ADC12	ADC12	SUS304
	Housing and cover	ADC12		
	Display shield	Polycarbonate		
Process connection		Rc 1/8		
Acceptable fluid		Liquid (Density range: 0.3 to 2.0g/mL)		
Operating temperature range		-10 to +60°C (Free of dew condensation)		
Maximum operating pressure		2MPa		
Flow directions		Forward flow only		
Power supply (※2)		20 to 30VDC		
Power consumption		Max. 10W		
Furnished cable		AWG24×7-conductor, φ6.8×3m		
Dustproof, waterproof construction		IP66		
Installation		<ul style="list-style-type: none"> • Horizontal installation (clamp not required) • Vertical installation (Bolthole provided) 		
Display		Backlit dot matrix: 8 digits		
Variables displayed		Instant mass flow, mass flow total, temperature		
Weight		Approx. 3kg	Approx. 3kg	Approx. 6.5kg
Communication interface		Bell 202 (using the HART protocol)		
Pulse output (※3)		Mass flow total open collector output (30V, 50mADC maximum) FS: 0.1 to 10000Hz selectable • CR002: 0.01g/P at 125Hz • CR003: 0.01g/P at 500Hz • CR004: 0.1g/P at 450Hz		
Analog output (※3)		4 to 20mADC Maximum load 600Ω Instant mass flowrate Damping: 1 sec. (std.) • CR002: 0 to 75g/min • CR003: 0 to 300g/min • CR004: 0 to 2700g/min		
Applicable EU directive		EMC directive: 2004/108/EC		

(※1): Corrosion resistance of nickel brazing used in wetted parts is equivalent to SUS314.

(※2): SU1503 power unit is acceptable to this meter. (SU1303 power unit cannot be applied.)

(※3): The pulse output at the time of the shipment and analog output are standard setting. (Setting change possible)

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■ Standard specifications for remote-mount transmitter (sensor performance is the same as that of the integral-mount type)

Item	Description			
Combined sensor	CoriMate II remote-mount sensor			
Power supply	AC specifications: AC 100V-240V 50/60Hz (allowable voltage range: AC 85V-264V) DC specifications: DC 20V-30V (recommended power supply capacity is 24VDC, 1A or more)			
Power consumption	Maximum 21VA, 7W			
Ambient temperature	-20°C to +50°C			
Transmission distance	When CoriMate remote-mount sensor is connected: Maximum 50m (connection with a dedicated cable)			
Dustproof, waterproof construction	IP20			
Installation structure	Rack mount type (install in a non-hazardous location)			
Sensor connection cable	Purchase a 9-core dedicated cable (CBP2) separately (cables for power supply and output are not included)			
Transmitter structure	Case material: Steel plate Paint color: Black			
Weight	0.8kg			
Display / Operation	Operation status display LED ... 2 LEDs (red, green), zero adjustment button			
Communication format	Superimposed on analog output 1			
Analog output	2 systems 4-20mA Load resistance 600Ω or less (communication conditions 250Ω or more) Select from mass flow, volume flow, temperature or drive gain current output (*1)			
Pulse output	1 system Maximum frequency 11000Hz Pulse width Duty 50% Open drain output (equivalent to open collector output) [Maximum 30V, 50mA] or voltage pulse "Low Level": 1.5V or less, "High Level": 13V or more Output impedance 2.2kΩ			
Status input / Status output (*2)	Select 1 contact of the status input / status output			
	<table border="1"> <tr> <td>Input</td> <td>Contact input ("a" contact input) Close: 200Ω or less, Open: 100kΩ or more Select from integrated value reset, zero adjustment, and output fixed at 0%</td> </tr> <tr> <td>Output</td> <td>Open drain output (equivalent to open collector output) [Maximum 30V, 50mA] Select from error (standard), flow direction, zero adjustment in progress, High/Low alarm, no function</td> </tr> </table>	Input	Contact input ("a" contact input) Close: 200Ω or less, Open: 100kΩ or more Select from integrated value reset, zero adjustment, and output fixed at 0%	Output
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Output	Open drain output (equivalent to open collector output) [Maximum 30V, 50mA] Select from error (standard), flow direction, zero adjustment in progress, High/Low alarm, no function			

(*1): Density measurement function is not included. Volume flow is a conversion value based on fixed density.

(*2): No functions are set in the default settings. A dedicated communication software EL2310 is required when changing parameter settings.

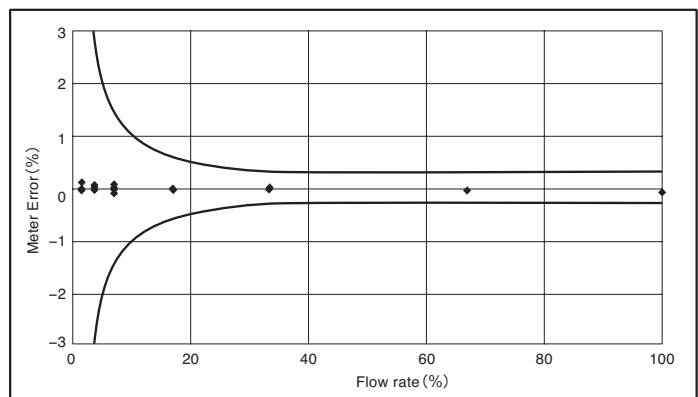
■ GENERAL PERFORMANCE

Item		Description		
Model		CR002	CR003	CR004
Flow rate (Liquid)	Maximum Flow rate g/min	75	300	2700
	Minimum Analog range g/min	5	20	180
	Cutoff g/min (*1)	1.5	6	54
	Factory calibration accuracy	±0.1% of F.S (Below 33% of flow rate) ±0.3% RD (33% to 100% of flow rate)		
	Repeatability	±0.07% of F.S. (Below 33% of flow rate) ±0.2% RD (33% to 100% of flow rate)		
	Analog accuracy	Accuracy ±0.1% of full scale		

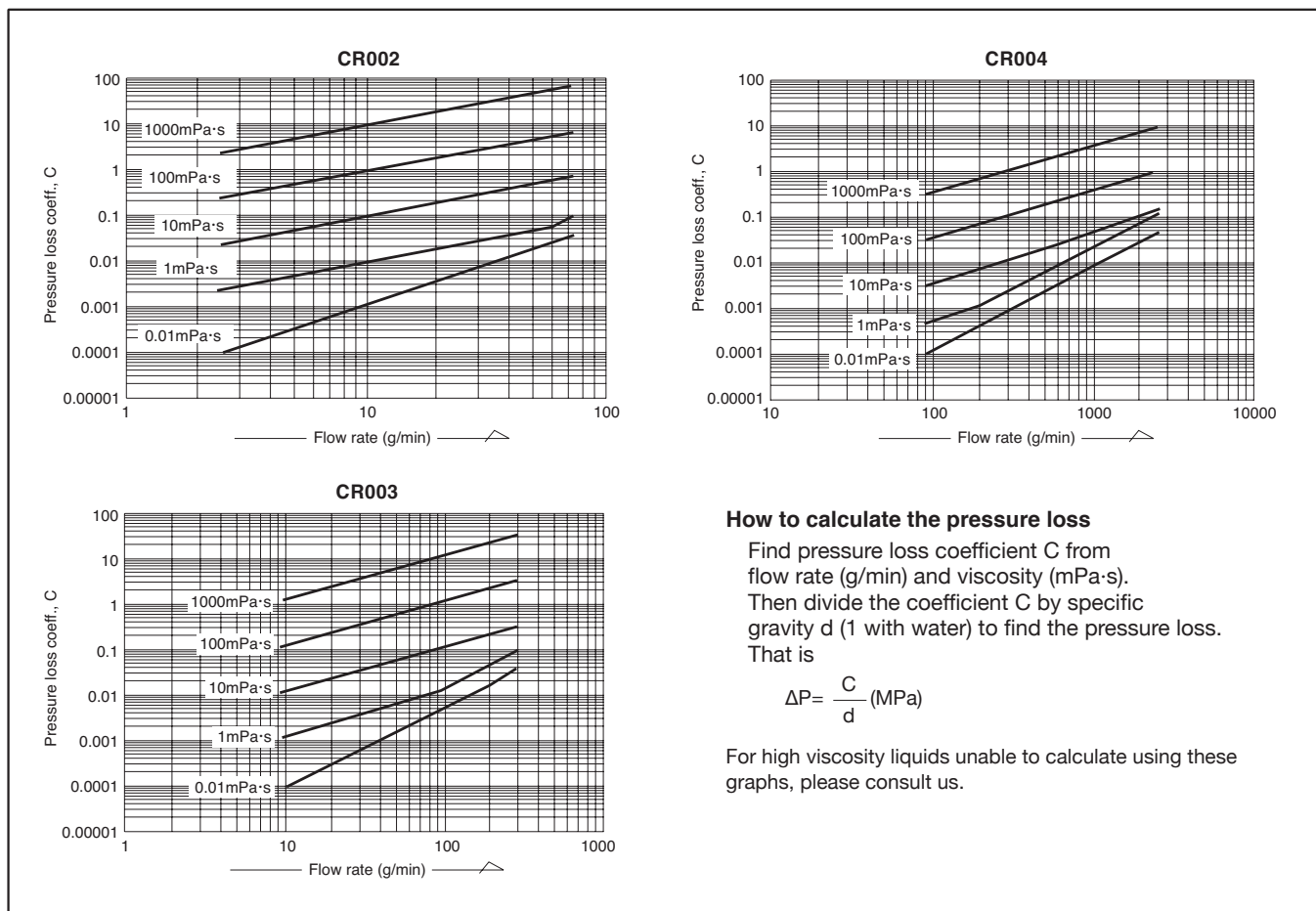
(*1): The flow rate (output signal and indication level) becomes zero at cutoff level or lower.

(The setting can be changed by the customer. For the remote-mount type, a dedicated communication software EL2310-08 is required separately.)

■ METER ERROR



■ PRESSURE LOSSES



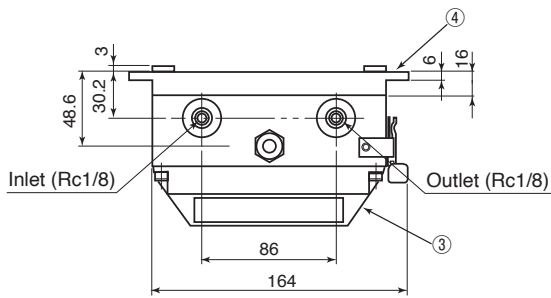
■ PRODUCT CODE EXPLANATION

Item	Product code													Description		
	①	②	③	④	⑤	⑥	-	⑦	⑧	-	⑨	⑩	⑪		⑫	⑬
Model	C	R														CoriMate
Nominal size			0	0	2											0.7mm, measurement flow range: 2.5 to 75 [g/min], Rc1/8
			0	0	3											1.5mm, measurement flow range: 10 to 300 [g/min], Rc1/8
			0	0	4											3.0mm, measurement flow range: 90 to 2700 [g/min], Rc1/8
Structural category						D	-									CoriMate II
Material								S	S	-						SUS316L
Connection method											2					Screw connection (Rc1/8 only)
Flange standard												0				Always "0"
Pressure category													0			Always "0"
Transmitter installation structure															N	Built-in transmitter (20 to 30VDC only)
															Q	Remote-mount (100 to 240VAC)
															R	Remote-mount (20 to 30VDC)
Version code															B	CoriMate II

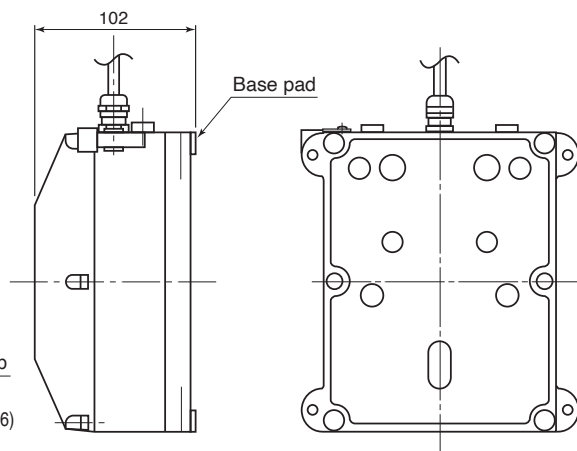
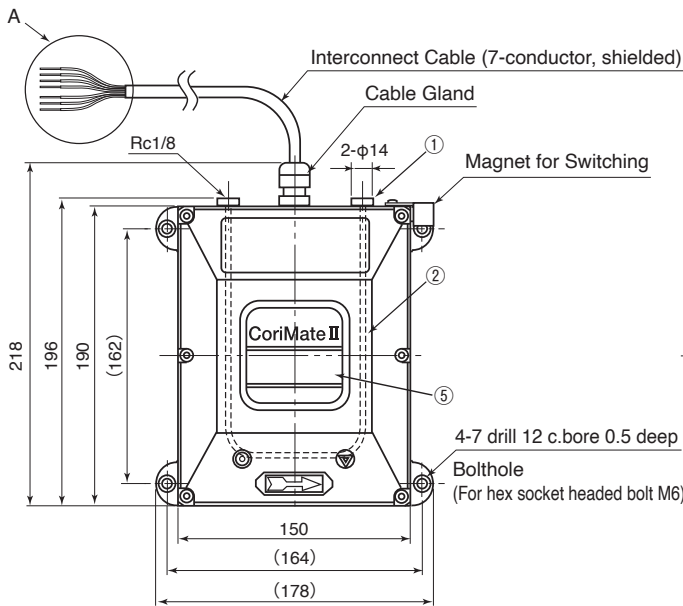
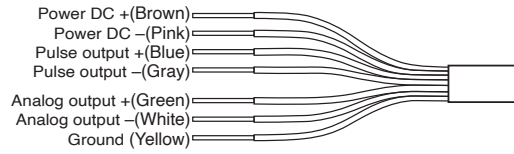
OVAL Coriolis Flowmeter CoriMate II Integral-mount (Reference drawing)

● CR002 and CR003

GS. No. GBN064E
OUTLINE DIMENSIONS [Unit: mm]



Detail of A (Wiring)



* The location of bolt holes has been changed from that of the previous model (Production Code: CR004D-SS-200N).

■ PRODUCT CODE EXPLANATION

Model	Nominal Size	Max allowable pressure (MPa)	Approx. Weight (kg)
CR002D-SS-200NB	Rc1/8	2.00	3.0
CR003D-SS-200NB	Rc1/8	2.00	3.0

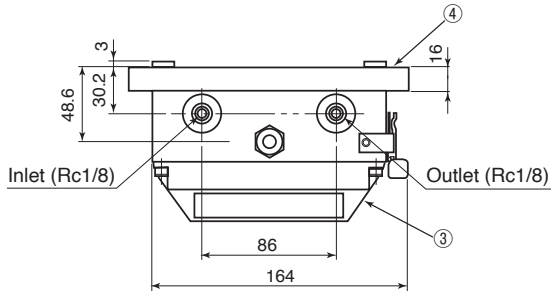
No.	Name	Material	Quantity
①	Nozzle	SCS16A	2
②	Flowtube	SUS316L-TP	1
③	Housing and Cover	ADC12 equivalent	1
④	Base	ADC12 equivalent	1
⑤	Display shielding	Polycarbonate	1

OVAL Coriolis Flowmeter CoriMate II Integral-mount (Reference drawing)

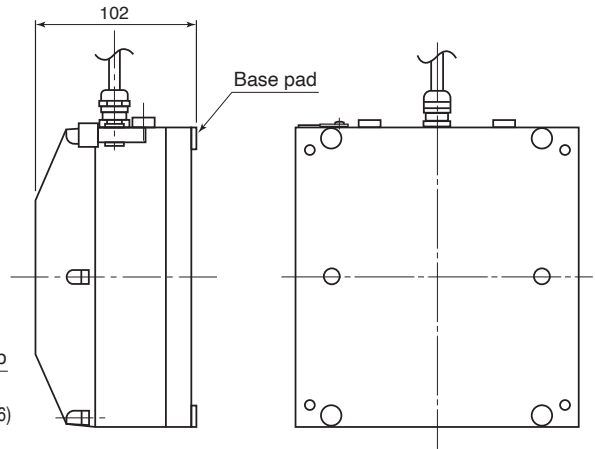
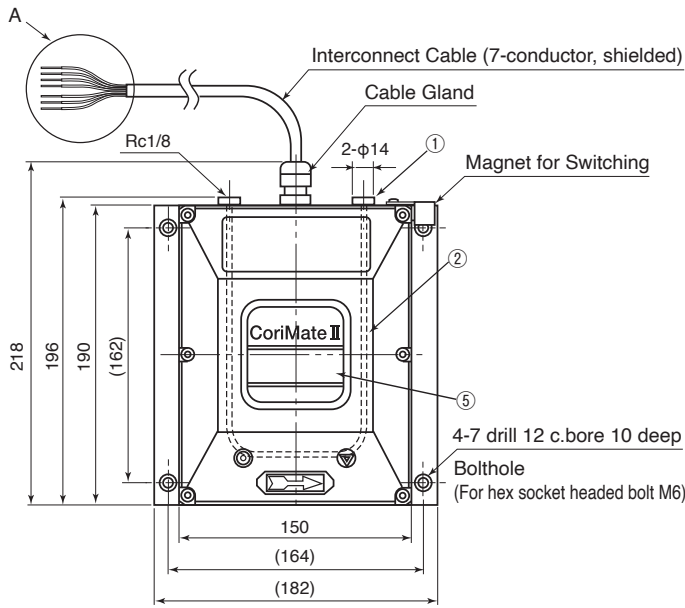
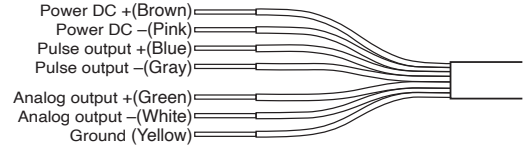
● CR004

GS. No. GBN064E

OUTLINE DIMENSIONS [Unit: mm]



Detail of A (Wiring)



※ The location of boltholes has been changed from that of the previous model (Production Code: CR004D-SS-200N).

■ PRODUCT CODE EXPLANATION

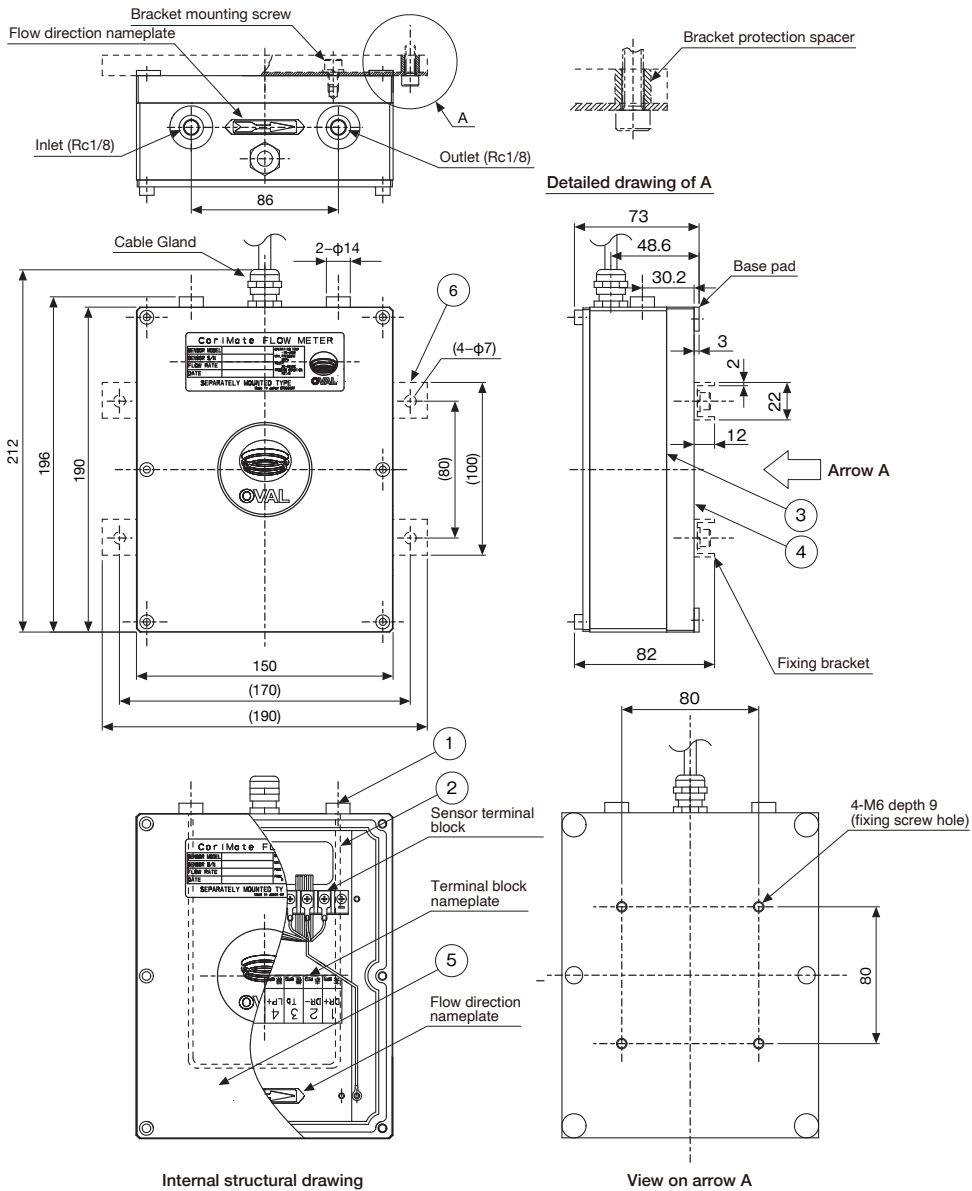
Model	Nominal Size	Max allowable pressure (MPa)	Approx. Weight (kg)
CR004D-SS-200NB	Rc1/8	2.00	6.5

No.	Name	Material	Quantity
①	Nozzle	SCS16A	2
②	Flowtube	SUS316L-TP	1
③	Housing and Cover	ADC12 equivalent	1
④	Base	SUS304	1
⑤	Display shielding	Polycarbonate	1

OVAL Coriolis Flowmeter CoriMate II Remote-mount (Reference drawing)

● CR002, 003, 004 Sensor

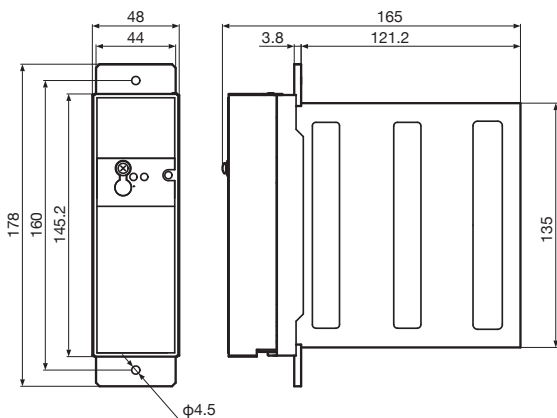
OUTLINE DIMENSIONS [Unit: mm]



Model	Nominal Size	Max allowable pressure (MPa)	Approx. Weight (kg)
CR00 □ D-SS-200QB	Rc1/8	2.00	4.0
CR00 □ D-SS-200RB	Rc1/8	2.00	4.0

No.	Name	Material	Quantity
①	Nozzle	SCS316L	2
②	Flowtube	SUS316L-TP	1
③	Housing	ADC12 equivalent	1
④	Base	SUS304	1
⑤	Cover	A5052	1
⑥	Bracket	A6063	1

● Remote-mount Transmitter



● Recommended wiring conditions

Category	Terminal	Recommendation		
		Rated voltage/ Allowable current (at 30°C)	Cross section	Crimp terminal
Power supply	L/N	300V or more 2A or more	1.25sq to 2.0sq AWG14 to 16	Round type 8.1 mm or less For M4
	(Earth)			
Signal	ANALOG 1, 2	100V or more 0.1A or more	0.75sq to 2.0sq AWG14 to 18	Round type 8.1 mm or less For M3.5
	PULSE			
	STATUS I/O			

■ PLEASE SUPPLY THE FOLLOWING INFORMATION WHEN YOU INQUIRE

(Fill in the form below to the extent possible. Further details will be finalized in later consultation.)

1. Sensor unit	CR <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> D-SS-200NB
2. Process fluid(※1)	Name _____ SP. gr _____ Viscosity _____ Concentration _____ %
3. Flow range	Max _____ Normal _____ Full scale _____ <input type="checkbox"/> g/min <input type="checkbox"/> Others _____
4. Fluid temperature	Max _____ °C Normal _____ °C Min _____ °C
5. Operating pressure	Max _____ MPa Normal _____ MPa Min _____ MPa
6. Ambient temperature	Max _____ °C Normal _____ °C

※1 : Special fluids, such as of high viscosity fluids or slurries, should be stated precisely and in detail.

The specification as of November, 2019 is stated in this GS Sheet. Specifications and design are subject to change without notice.

Sales Representative:

GS.No.GBN064E

初版	改訂	印刷
11.09	19.11	12.06

(500)