

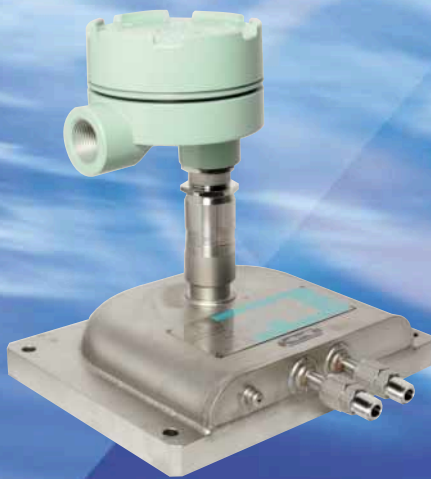


Measures extremely low flows
as low as 0.2g/min (0.4g/min) !!
Width of the application spreads!!

Microflow Coriolis flowmeter

MassFlex Series

MODEL CN00A, CN001



(CN00A)
0.2g/min-



(CN001)
1.5g/min-

GENERAL

Based on the expertise and experience in Coriolis technology OVAL has gained over many years, and in response to user needs, we have added to the current general-purpose Coriolis meter families, a new accurate extralow flowmeter series which offers "increased accuracy, user friendliness and safety of operation," thus expanding our capacity in the explosionproof market as well.

FEATURES

- World's smallest Coriolis flowmeters to measure extremely low flows from 0.2 g/min (0.4g/min).
- Measures density at the same time (option).
- Operates under pressures up to 15MPa. (20°C Liquid).
- Vibration proof base no longer required; installs directly in the piping.

Microflow Coriolis flowmeter CN00A, CN001

GENERAL SPECIFICATIONS

● Sensor Unit

Item	Description		
Model	CN00AK-SS-200R	CN001K-SS-200R	
Nominal dia.	1/4"		
Materials	Wetted parts	SUS316L	
	Casing	SUS304	
	O-rings	Fluorine rubber (Viton)	
	Process connection	R1/4	
Acceptable fluid	Liquid		
Density range	0 to 2.0 g/mL		
Temp. range	Structural rating	−200°C to +200°C	
	Ex.temp. class	T3	−20°C to +120°C
		T4	−20°C to +55°C
Max.operating pressure	Liquid	15MPa at 20°C	
	Gas	0.98MPa	
Flow directions	Forward/reverse flow		
Explosionproof enclosure	Intrinsic safety Exib II BT3, Exib II BT4		

NOTE: Compliance with high pressure gas regulations is not applicable.

GENERAL PERFORMANCE

Item	Description			
Model	CN00A	CN001		
Flowrate (liquid)	Max.normal rate	0 to 40 g/min	0 to 150 g/min	
	Max.allowable rate	0 to 60 g/min	0 to 225 g/min	
	Min.rate	0 to 2 g/min	0 to 7.5 g/min	
	Guaranteed lower limit flowrate	0.4 g/min	1.5 g/min	
	Factory calib. acc.	Liquid	(±0.2%±zero stability error)of reading	
		Gas	(±0.5%±zero stability error)of reading	
	Reproducibility	Liquid	(±0.05%±1/2 zero stability error)of reading	
Gas		(±0.25%±1/2 zero stability error)of reading		
Zero stability error	0.006 g/min	0.0225 g/min		
Density (liquid)	Measuring range	0.3 to 2 g/mL		
	Factory calib.acc.(option)	±0.003 g/mL		
Analogue accuracy	Accuracy ±0.1% of full scale			

NOTE: In gas measurement, the maximum allowable flowrate varies with the kind of gas and operating pressure. Consult the factory for confirmation.

$$\text{Zero stability error} = \frac{\text{Zero stability (g/min)}}{\text{Flow rate at that time (g/min)}} \times 100\%$$

TEMPERATURE-PRESSURE RATINGS

Temperature, °C	−200 0 40 75 100 125 150 175 200										
	Liquid	15.0	15.0	15.0	13.2	12.3	11.8	11.2	10.8	10.4	
Allowable press. MPa	Gas	0.98									

Maximum Service Flowrates during Gas Measurement (at 20°C, 0.98MPa)

Item	Description					
Model	CN00A			CN001		
Typical gases	Nitrogen	Air	Argon	Nitrogen	Air	Argon
Max. service flowrate	15.2g/min	15.3g/min	17.8g/min	42.7g/min	43.3g/min	50.5g/min

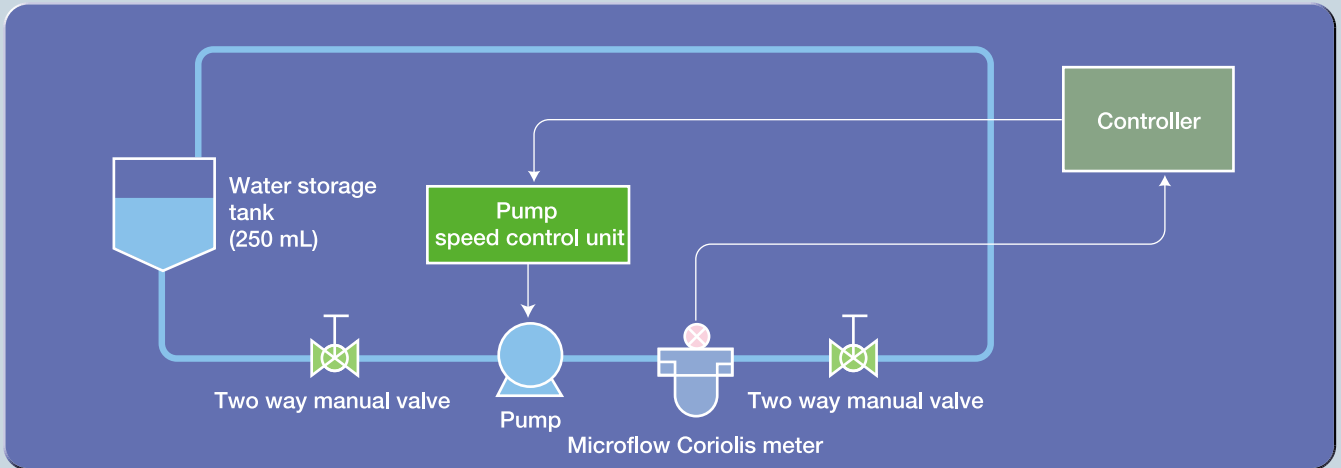
● Transmitter (CT9401)

Item	Standard	Foundation Fieldbus Corresponding
Power supply	85 to 264VAC (50/60Hz) or 20 to 30VDC	
Power consumption	25VA max. or 10W max.	
Ambient temperature	−20 to +50°C (Non condensing)	
Transmission length (remote type)	Sensor unit to transmitter: 200 meters max. (using dedicated interconnect cable)	
Explosionproof rating	TIIS: Flameproof Exd [ib] IIBT4 ATEX: EExnLIIBT3, EExnLIIBT4	
Dusttight / watertight enclosure	IP66	
Installation	Remotely located type	
Display	LCD display provided (7-segment, 8-digit) with measuring units	
Communication	HART protocol (Bell 202)	Foundation Fieldbus H1
Baud rate	1.2 kbps	31.25 kbps
Pulse output	Open collector pulse Voltage pulse (option)	None
Analog output	4 to 20mA DC Max. load 600 Ω	
Status input	Contact-closure input (Form "a" contact) Close : 200 Ω max. Open: 100 Ω min. Select one from Function OFF (default), remote zero, total counter reset, or 0% signal lock.	
Status output	Open collector output Normal state: ON Upon fault detection: OFF Select one from error (default), flow direction, or high/low alarm	
Function blocks	_____	Four AI blocks (mass flowrate, volume flowrate, density, and temperature can be assigned to respective blocks.) Execution time: 100ms
Weight	Remotely located type: 5.8 kilograms	

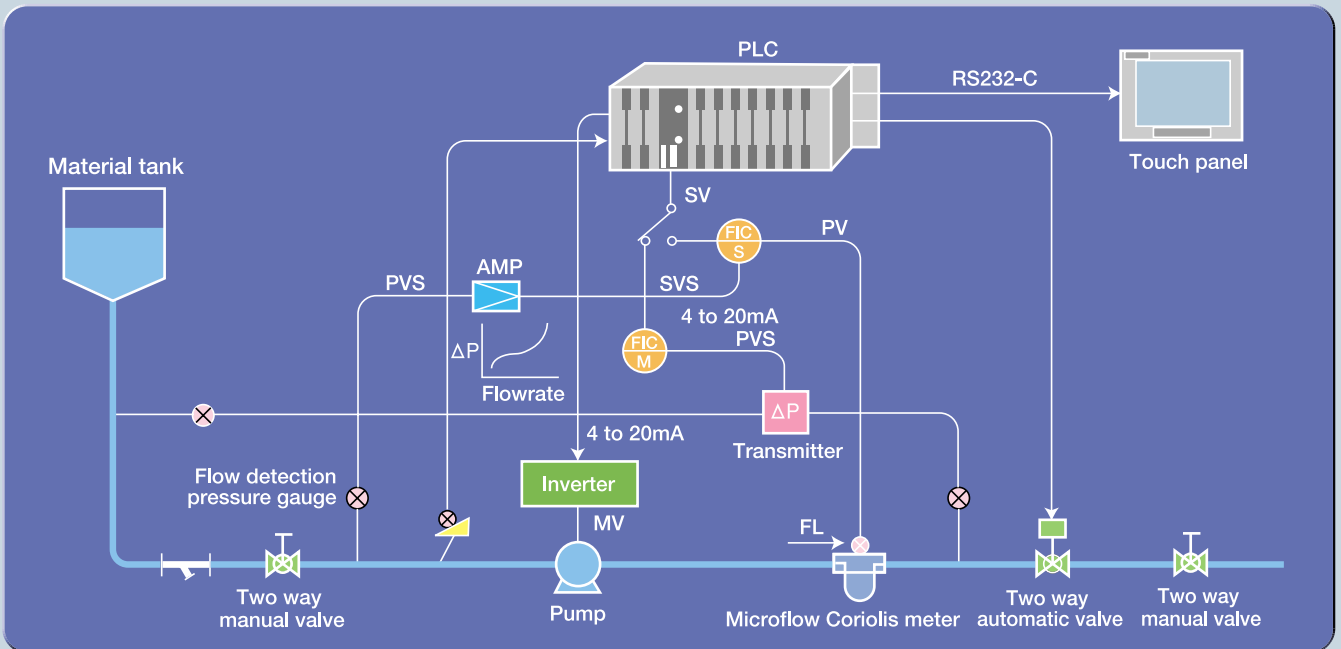
NOTE: For other specifications and further details, see OVAL Products General Specification leaflet (GS No. GBN062).

APPLICATION

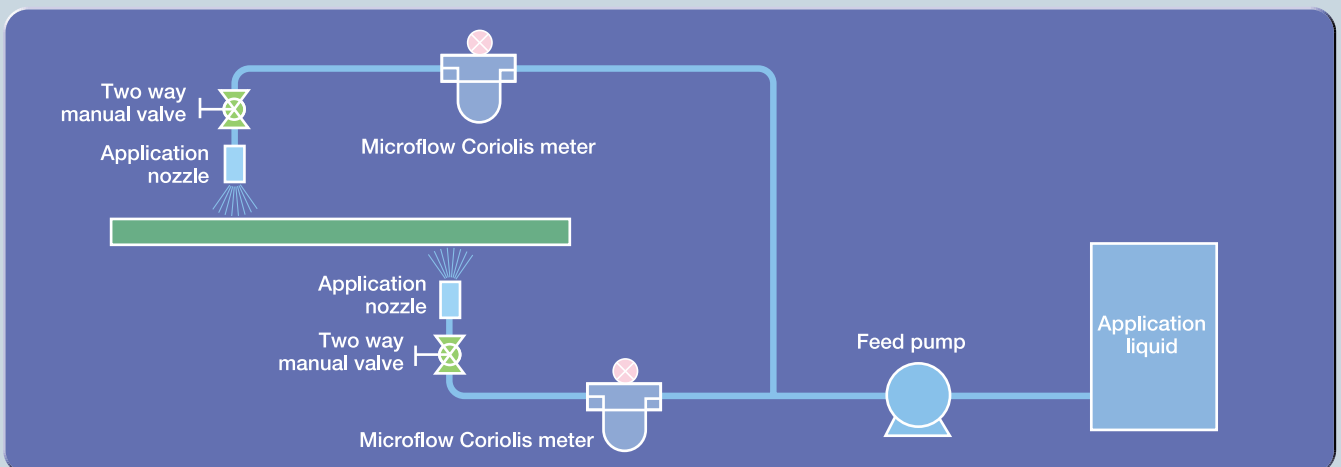
1 Microflow control and measuring system



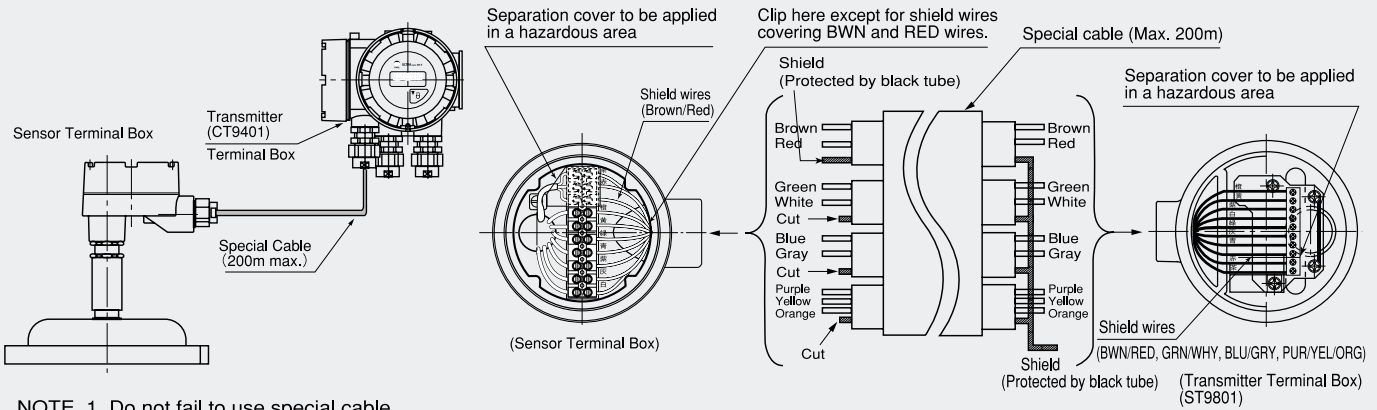
2 Small differential pressure Coriolis flowmetering/control package system



3 An example of a coating system for architectural materials, chemicals, and others



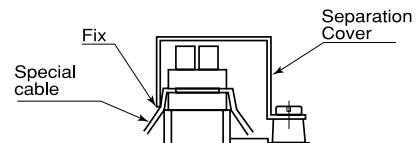
WIRING CONNECTIONS



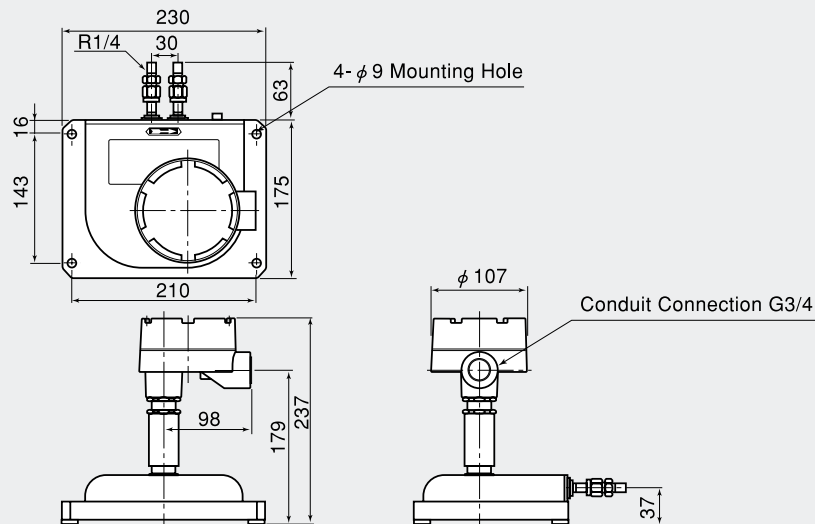
NOTE 1. Do not fail to use special cable.
2. Shield wire preparation

- (1) Transmitter end:
Bundle the shield wires corresponding with brown/red, green/white, blue/grey, purple/yellow/orange and slip the black sleeve over them as shown in the figure, exercising care to avoid potential contact with the housing and other conductive parts.
- (2) Sensor end:
Slip the black sleeve over the shield wires corresponding with brown/red pair cable as shown in the figure, exercising care to avoid potential contact with the housing and other conductive parts. Clip all other shield wires.

How to install the cover.
After wiring with the relay terminals, install the cover as shown below.



DIMENSIONS



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



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