

Capacitive Electromagnetic Flowsensor CX Specifications

Model		CX		
Nominal Diameters		10	15	20
Accuracy-Guaranteed Flow-Rate Range		0.5 ~ 15 L/min	2.0 ~ 60 L/min	
Displayable Flow-Rate Range		0.0 ~ 18 L/min	0.0 ~ 72 L/min	
Low-Flow Cut-Off		0.45 L/min	1.8 L/min	
Repeatability Accuracy		±2%F.S. (No need of straight piping)		
Temperature Characteristics	Ambient Temperature	±5%F.S. (Relative error when changing from the standard temperature 25°C to 10°C or 50°C)		
	Fluid Temperature	±5%F.S. (Relative error when changing from the standard temperature 25°C to 1°C or 85°C)		
Piping Connection		Rc3/8	Rc1/2	Rc3/4
Fluid Temperature Range		0 ~ 85°C		
Conductivity Range		5µS/cm ~ 3mS/cm		
Measurable Fluids		Water, water-soluble coolant		
Working Pressure		0 ~ 1 MPa		
Pressure Resistance		2 MPa		
Pressure Drop		0.02 MPa or less		
Response Time (63% Response)		0.25s / 0.5s / 1s / 2s / 5s (Default Value: 1s)		
Working Ambient Temperature/Working Ambient Humidity		0 ~ 50°C / 35 ~ 85%RH (Non-condensing)		
LED Display	Main Display	Main Display: 4 digits and 7 segments (Two-color display in green and red) Sub Display: 6 digits and 11 segments (White)		
	Sub Display	Displays either instantaneous flow-rate or accumulated flow volume		
Display Unit		Output mode or input mode, flow direction, arbitrary characters (Selectable)		
		Instantaneous flow-rate: L/min; Accumulated flow volume: L, kL or ML (Selectable)		
Switch Output	Maximum Load Voltage/Current	NPN or PNP transistor output *Please select when ordering. 30 VDC / 50 mA		
	Output Modes	Level judgment mode/ Window judgment mode/ Trip accumulated flow volume output mode/ Accumulated flow volume pulse output mode/ Alarm output mode (Selectable) (Accumulated flow volume pulse output mode: Nominal Diameter 10: Pulse unit: 0.01 L/P, ON-time: 10 ± 5 ms; Nominal Diameter 15 and 20: Pulse unit 0.1 L/P, ON-time: 50 ± 5 ms)		
Analog Output *1	Voltage/ Current	1 to 5 V DC load impedance: 50 kΩ or higher/4 to 20 mA load impedance: 500 Ω or less * Please select when ordering.		
Switch Input *1	Input Time	20 ms or longer		
	Short-Circuit Current	Approximately 2 mA		
Protection Class		IP65 (When using the body-connection connector cable)		
Current Consumption		65 mA or less		
Power Source		24 VDC ± 10% P-P Ripple within ± 10%		
Installation Position		Free		
Weight		Approx. 460 g	Approx. 490 g	Approx. 520 g
Wetted-Parts Materials		PPS / FKM / Bronze (CAC804)		
Accessory		Body-connection connector cable: 3 m		
Optional Parts		Installation bracket		

Note 1. Please read and understand the product specifications before using the product.
 Note 2. In case of consideration to arrange plural pieces of the products by the side of a flow rate type filling apparatus in Japan, please refer to Japanese Patent No. 3916032 before deciding to install them.

*1 Please select either analog output or switch input.

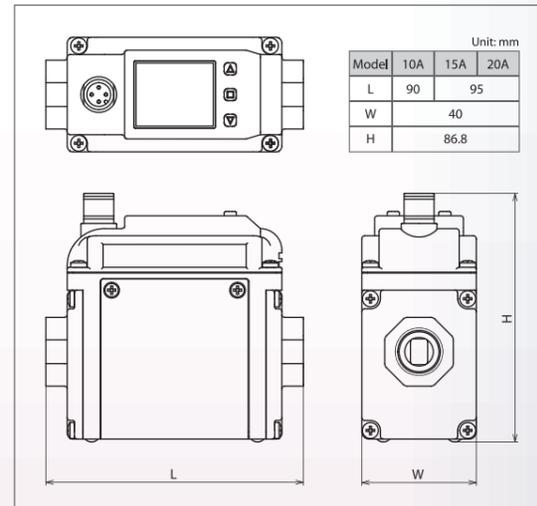
Pin assignment for the exclusive body-connection connector cable

Connector Pin Numbers on the Flowsensor Side	Body-connection connector portion Pin arrangement	Connection Cable (4 cores)	Contents
1		Brown	Power (+)
2		White	OUT 2: Analog output (Voltage or Current)
3		Blue	GND
4		Black	Out 1: Switch output

Model Codes

Basic Model	Nominal Diameters	Connection Shape	Switch Output	Analog Output	Accessory Cable	Option Bracket	Contents
CX							CX
	10						Flow-Rate Range: 0.5 ~ 15 L/min
	15						Flow-Rate Range: 2.0 ~ 60 L/min
	20						Nominal Diameter 10: Rc 3/8; Nominal Diameter 15: Rc 1/2; Nominal Diameter 20: Rc 3/4
		A					NPN transistor
			N				PNP transistor
				V			1 ~ 5 VDC
				A			4 ~ 20 mADC
					3		Body-connection connector cable: 3 m (standard)
					N		None
						B	Installation bracket
						N	None (standard)

External Dimensions



Technical specifications in this catalog are up-to-date as of April 2015.



Reliability, Creativity, Service

Capacitive Electromagnetic Flowsensor

CX

Resistant to foreign substances

Resistant to deposits

Straight piping is not required



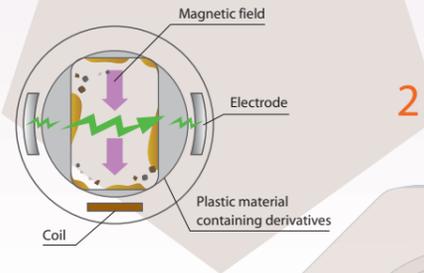
Five "No"s and Five "Can"s

The CX offers **five "No"s** for easy operations!



"No" electrodes are exposed to fluids.

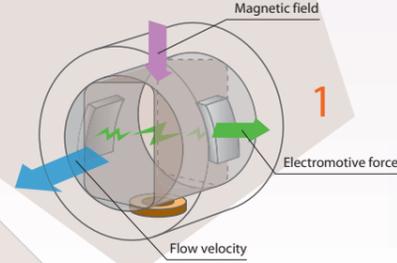
The plastic material containing derivatives is used in the flow channel to prevent the electrodes from being exposed to fluids. This made the CX strong against foreign substances and deposits.



2

"No" moving parts

The CX uses the law of electromagnetic induction in its measurement principle. With its no-obstruct structure with no moving parts in the flow channel, it has only little pressure loss with high durability.



1

"No" straight piping required

The rectangle structure is adapted to the flow channel in order to stabilize flows and eliminate straight piping.

The rectangular structure is the key!



3

"No" need to have a large installation space

The device can be installed in a small space due to the compact body size without straight piping.



4

"No" measures are required against power supply noise

No measures are needed against power supply noise even if an inexpensive switching power supply device is used. It conforms to the EC Directive and obtained the CE mark.

5

Only the CX can offer **five "Can"s**!



1. Abnormal flow-rates **can** be identified at a glance.

By setting a level-judgment value to determine abnormal flow-rates, the CX indicates normal flow rates in the green LED light while it automatically changes to indicate abnormal flow rates in the red LED light. Just by looking at the LED indicator, the status of flow-rate monitoring can be checked.



* In these examples, the value to determine abnormal flow rates is set at 12.0 L/min.

2. Multiple units installed **can** be identified.

Use characters A to Z, 0 to 9, and symbols to set up arbitrary names and numbers.



Up to six characters can be set to name a unit. It is useful to identify the cooling system.

3. The meters **can** be controlled by external input.

When using the functions of trip flow volume accumulation or zero point adjustment, resetting the accumulated value of trip flow volume or adjusting the zero point by external input signals can be performed.



Trip accumulated flow volume

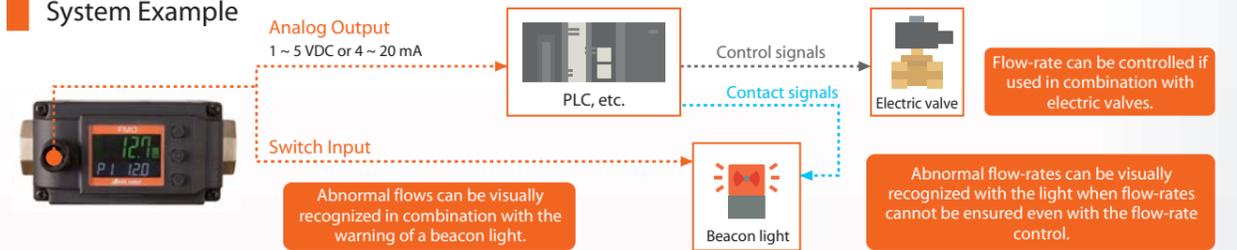
4. The flow displays **can** be switched over.

The values of the main and sub displays can be switched over.

5. The flow direction **can** be changed.

With a simple setting change, the direction of measuring can be reversed.

System Example



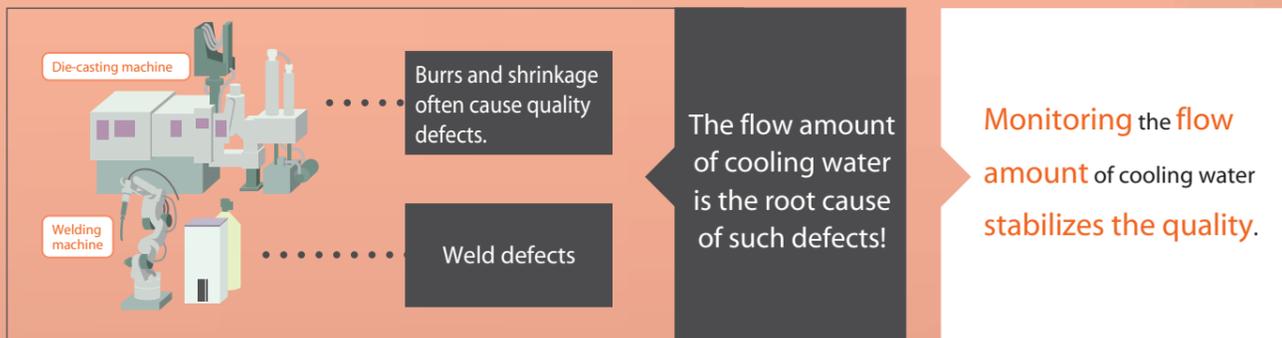
Flow-rate can be controlled if used in combination with electric valves.

Abnormal flows can be visually recognized in combination with the warning of a beacon light.

Abnormal flow-rates can be visually recognized with the light when flow-rates cannot be ensured even with the flow-rate control.

Applications

For die-casting machines, injection molding machines and welding machines



For cutting machines and grinding machines

