

# CML

## High-Flow Mass Flowmeter



The CML is a high-flow gas mass flowmeter that uses the Yamatake  $\mu F$  (Micro Flow) sensor as its sensing element.

The combination of an ultra-miniature precision sensor and advanced circuit design technology has enabled high accuracy and impressive 160:1 rangeability.

### Specifications

Model No.	CML050	CML080	CML100	CML150
Compatible gases	Air/nitrogen, argon, city gas 13A (LNG-base, 45/46MJ/m <sup>3</sup> ), propane, butane, carbon dioxide, oxygen. Gas must be dry and without corrosive components (chlorine, sulfur, acid, etc.). It must also be clean, without dust or oil mist.			
Flow rate range	0 to 160m <sup>3</sup> /h (normal)	0 to 400m <sup>3</sup> /h (normal)	0 to 650m <sup>3</sup> /h (normal)	0 to 1600m <sup>3</sup> /h (normal)
Accuracy	1/20 to 1/1 of flow rate range: $\pm 2\%$ rdg. 1/160 to 1/20 of flow rate range: $\pm 3\%$ rdg. % rdg.: percentage of indicated reading			
Operating pressure range	0 to 1.0MPa			
Sampling cycle	160ms $\pm 10\%$			
Output signal	Instantaneous flow rate output: 4–20mAdc (allowable load resistance 600 $\Omega$ max.). 24mA max.			
Contact output	3 SPST relay contacts (common)			
Totalizer pulse output	2 open collector outputs			
External contact	No. of inputs 1			
input functions	Description Dedicated use for reset of cumulative flow			
Communications	RS-485 interface, 5-wire type			
Power	85 to 264Vac 50/60Hz			
Current consumption	10VA max.			
Pipe size	50A (2B)	80A (3B)	100A (4B)	150A (6B)
Mass	21kg	24kg	29kg	45kg

### ● Gas Type and Control Flow Rate Ranges Unit: m<sup>3</sup>/h (normal)

The controllable flow rate range varies according to the gas type.

Model No.	CML050	CML080	CML100	CML150
Gas type				
Air/nitrogen	0.0 to 160.0	0.0 to 400.0	0.0 to 650.0	0.0 to 1600.0
City gas 13A (45/46MJ/m <sup>3</sup> )	0.0 to 160.0	0.0 to 400.0	0.0 to 650.0	0.0 to 1600.0
Propane	0.0 to 60.0	0.0 to 140.0	0.0 to 220.0	0.0 to 500.0
Carbon dioxide (CO <sub>2</sub> )	0.0 to 120.0	0.0 to 300.0	0.0 to 480.0	0.0 to 1200.0
Oxygen	0.0 to 160.0	0.0 to 400.0	0.0 to 650.0	0.0 to 1600.0

### Selection Guide

Example: CML0800SJN0F110D0

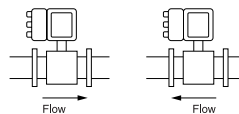
Segment	Model No. selection	Description
I Basic No.	<b>CML</b> ↓ ↓	High-flow mass flowmeter
II Pipe size	<b>050</b> ○ ○	50A (2B)
	<b>080</b> ○ ○	80A (3B)
	<b>100</b> ○ ○	100A (4B)
	<b>150</b> ○ ○	150A (6B)
III Type	<b>0</b> ○ ○	Applicable pressure range: 0 to 1MPa
IV Material	<b>S</b> ○ ○	Body: SUS304/SCS13A
V Connection	<b>J</b> ○ ○	JIS 10K RF flange
VI Type of gas	<b>N</b> ○ –	Air/nitrogen (setting changeable to argon, city gas 13A, propane, butane, CO <sub>2</sub> )*1
	<b>S</b> – ○	Oxygen*1
VII Output	<b>0</b> ○ ○	4 to 20mAdc and pulse output
VIII Power	<b>F</b> ○ ○	85 to 264Vac 50/60Hz
IX Communications	<b>1</b> ○ ○	RS-485
X Flow direction	<b>0</b> ○ ○	Horizontal (flow: left → right)*2
	<b>1</b> ○ ○	Horizontal (flow: right → left)*2
	<b>2</b> ○ ○	Vertical (flow: down to up)*2
	<b>3</b> ○ ○	Vertical (flow: up to down)*2
XI Option 1	<b>0</b> ○ –	None
	<b>1</b> ○ ○	Oil-inhibiting treatment for gas-contacting parts
XII Option 2	<b>D</b> ○ ○	With inspection data
	<b>Y</b> ○ ○	With inspection data + traceability certification
	<b>K</b> ○ ○	With inspection data + traceability certification + flow rate calibration certification
XIII Design code	<b>0</b> ○ ○	Product version

\* A circle (○) denotes availability.

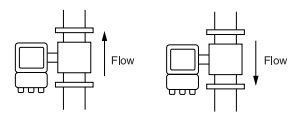
Notes: \*1. The controllable flow rate range varies according to the gas type. See table.

\*2. Flow direction can be selected from the 4 types shown below. LCD display is parallel to the piping when mounted vertically.

#### • Horizontal

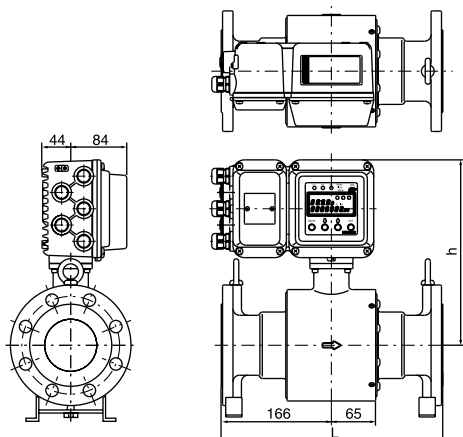


#### • Vertical



### Dimensions

(Unit: mm)



Model No.	L	h
CML050	255	285
CML080	340	285
CML100	400	295
CML150	400	330