



Super Micro Flowmate FLOWMATE (OVAL M-III)



■ GENERAL

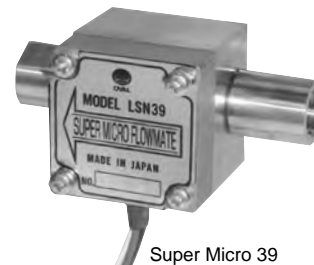
Designed for monitoring fuel consumption of combustion appliances and heaters or elsewhere where small flow measurement is desired, the FLOWMATE (OVAL M-III) is a compactly built liquid service OVAL flowmeter dedicated to remote control with a pulse generator. Meter size 38 (resin body) intended for water and pure water applications is a new addition to this series, expanding the application range for small flow metering.

■ FEATURES

1. Compact configuration with built-in pulse generator.
2. Simple and firm construction plus inexpensive.
3. Remote totalizing counter displays actual throughput of flow to be utilized for monitoring and controlling of fuel consumption in various types of instruments.
4. Multiple flow control systems can be made-up being combined with versatile flow control elements such as pump and valves, i.e: proportional injection of additives in fine chemical processes.
5. Ideal for fuel cell applications or other low to micro flow measurement.



Super Micro 38



Super Micro 39



Model 41



Model 45

■ GENERAL SPECIFICATIONS

● Flow Range

Unit in L/h

Viscosity Meter size	Water	More than 0.3mPa*s and less than 0.8mPa*s	More than 0.8mPa*s and less than 2.0mPa*s	More than 2.0mPa*s and less than 5.0mPa*s	More than 5.0mPa*s and less than 200mPa*s	More than 5.0mPa*s and less than 1000mPa*s	Rotor Material
Super Micro 38	0.09 to 3						PEEK resin
Super Micro 39			0.12 to 6	0.12 to 6			PPS resin
40		1.5 to 50	1.0 to 50	0.7 to 50		0.5 to 50	Special resin
41		3.0 to 100	2.0 to 100	1.5 to 100		1.0 to 100	Special resin
		7.0 to 100	4.0 to 100	2.0 to 100	1.0 to 100		Stainless Steel
45		10.0 to 500	7.0 to 500	4.0 to 500		2.5 to 500	Special resin
		25.0 to 500	15.0 to 500	7.0 to 500	3.5 to 500		Stainless Steel

● Meter Body

Item	Description											
Meter size	Super Micro 38 *1		Super Micro 39		40		41		45			
Nominal size	R 1/4		Rc1/4 (With the fitting furnished.)		Rp 1/8 (6mm)		Rp 1/8 (6mm)		Rp 1/4 (8mm)			
Accuracy	0.09 to 0.18 L/h ±10% RD 0.18 to 3 L/h ±3% RD		0.12 to 0.3 L/h ±8% RD 0.3 to 6 L/h ±3% RD						±1% RD			
Operating temp. range	-10 to +60°C								-20 to +80°C			
Max. operating press.	0.3MPa		0.49MPa						0.98MPa			
Material *2	Body	P	C		L	C	L	C	C	L	C	C
	Rotors	P	P		K	K	K	K	C	K	K	C

*1 Acceptable physical orientation of meter size 38 is from bottom to top only in the pipeline.

*2 Material C : Stainless steel (Body : SUS316, Rotor : SUS316L (Sintered metal))

L : Aluminum + Alumite treatment

K : Special resin

P : PPS resin (For measurement of other than water, purified water and oils, consult the factory.) Model 39 only

P : PEEK resin (For measurement of only water, purified water) Model 38 only

NOTE: Body material with code "L" is not serviceable with water and corrosive liquids.

OVAL Corporation

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● Pulse Generator

1. MR sensor (standard)

Item	Description	
	Model 38	Model 39, 40, 41, 45
Detection method	Magnetic sensor	
Response frequency	Max.1000Hz	
Ambient temp. range	-20 to +80°C	
Output pulse	Voltage pulse 0/1=Max. 1VDC/ [Supply voltage] -Min. 2VDC (at load resistance Min.10kΩ) 	Voltage pulse : 0/1=Max. 0.5VDC/6.2 to 7.6VDC (at load resistance Min.10kΩ)
	Wave form ratio (%) $4.0 \leq \frac{H}{H+L} \times 100 \leq 65.0$	
Transmission distance	Max. 1km (Cable : CVVS 1.25 to 2sq.)	
Power supply	12 to 24VDC±10%	
Power consumption	Max. 10mA (Max 0.3W)	

Output Pluse Unit

Meter size	Scaled pulse		Unscaled pulse		Max. Flowrate L/h
	Pulse Unit mL/P	Freq. at Max. Flowrate Hz	Meter Factor mL/P	Freq. at Max. Flowrate Hz	
Super Micro 38	————	————	0.0550	15.2	3
Super Micro 39	————	————	0.161	10.4	6
40	1	13.9	0.25	55.6	50
41	1	27.8	0.5	55.6	100
45	10	13.9	2.5	55.6	500

2. Reed Switch (Option: Except for Size 38 or 39)

Item	Description
Max. operating voltage	AC : 45V, DC : 45V
Contact capacity	10W or 0.5A
Electric durability	DC : 250V RMS 1min.
Output pulse	Contact pulse (Unscaled pulse only)
Ambient temperature	-20 to +85°C (at less than 90%RH)

Output Pluse Unit

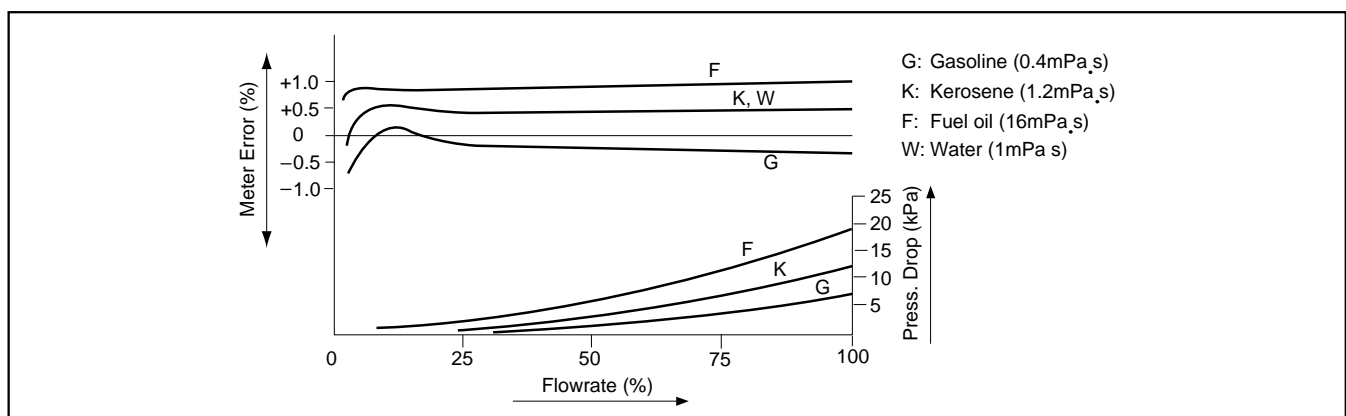
Meter size	Unscaled pulse		Max. Flowrate L/h
	Meter Factor mL/P	Freq. at Max. Flowrate Hz	
40	0.5	27.8	50
41	1.0	27.8	100
45	5.0	27.8	500

■ APPLICABLE EN DIRECTIVES

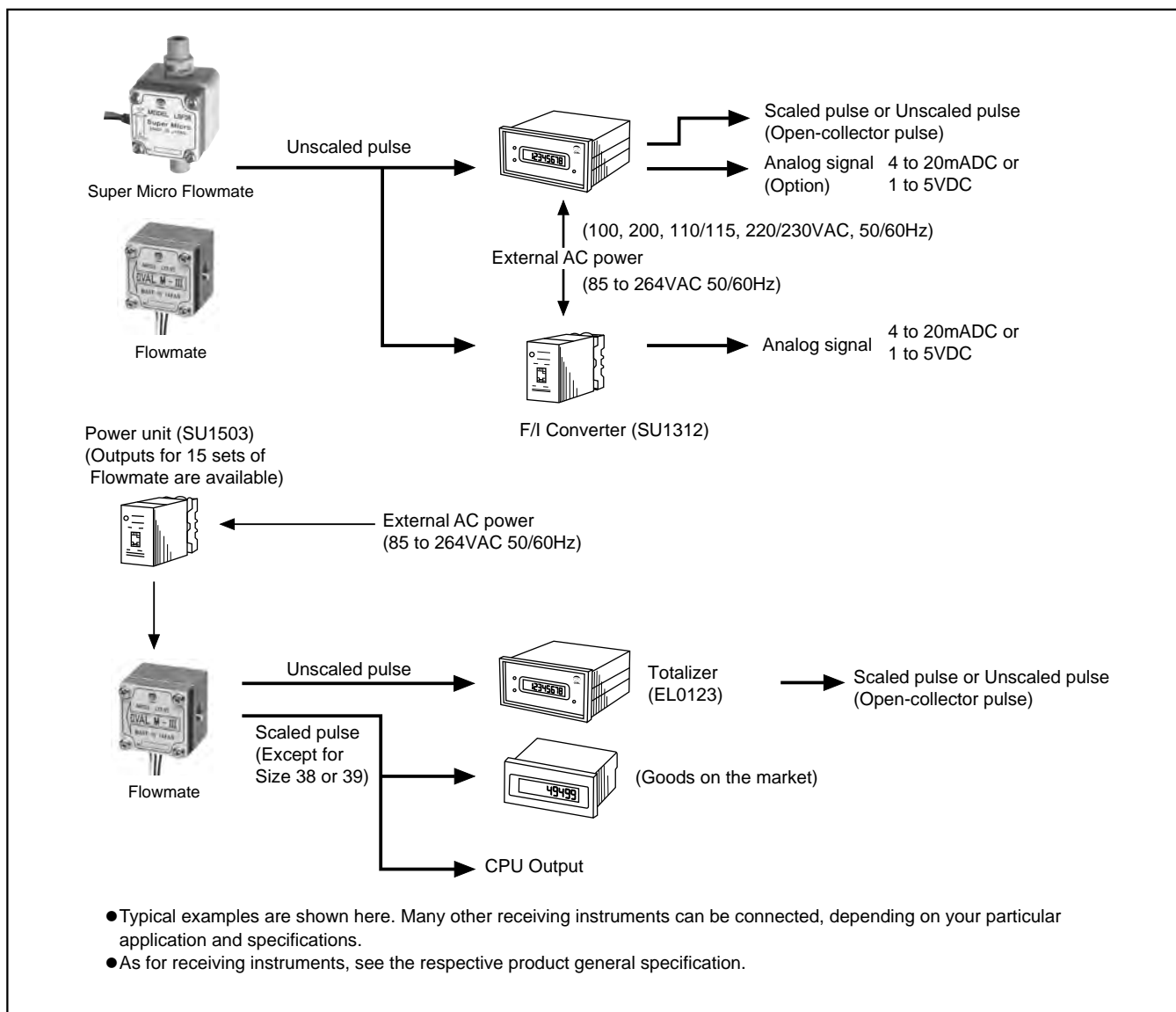
Applicable EU Directive	Electro-Magnetic Compatibility Directive : 2004/108/EC	
Applicable EN standards, etc.	For Electro-Magnetic Compatibility Directive	EN55011 : 1998/A1 : 1999, Group 1, Class B EN61000-6-2 : 2001

Provision of a lightning arrestor (M-SYSTEM : MDP-SP or equivalent) is prerequisite.

■ METER ERROR AND PRESSURE DROP



■ COMBINATION WITH RECEIVING INSTRUMENTS



■ PRODUCT CODE EXPLANATION

Item	Code. No.									Description	Combination				
	①	②	③	④	⑤	⑥	⑦	⑧	⑨		38	39	40	41	45
Kind	L	S	F								○	○	○	○	○
Model				3	8						○				
				3	9							○			
				4	0								○		
				4	1									○	
				4	5										○
Material of Metering elements						P					○	×	×	×	×
						P					×	○	×	×	×
						C					×	×	×	○	○
						L					×	×	○	○	○
						P					×	×	○	○	○
Connection						0	-				○	○	○	○	○
						8	-				×	○	○	○	○
Generation								M			○	○	○	○	○
								R			×	×	○	○	○
Kind of pulse									1		○	○	○	○	○
									2		×	×	○	○	○

Note ○ : Available
× : Not available

■ OUTLINE DIMENSIONS (Unit in mm)

● Super Micro Flowmate (size 38)

NOTE: For meter size 38, prepare a strainer (mesh #300). Meter size 39 requires a strainer if fittings are not provided.

● Super Micro Flowmate (size 39)

* Rc 1/4 fitting has a #300 built-in net.

● Meter size 40, 41

● Meter size 45

● Measurements

MODEL	A	B	Screw depth
39	M4	45	6
40	M4	45	6
41	M4	45	6
45	M5	56	15

■ STRAINER

● YS12 and 13

Applicable meter sizes : 40, 41 and 45
 Max. operating pressure : 1.57MPa
 Body material : FC200 (cast iron) or SCS14A (stainless steel)
 Net material : SUS316 (stainless steel)

● Dimension Unit in mm

Item	Nominal size A	Material	L	H (approx.)	Net mesh No.
YS12 (for meter sizes : 40 and 41)	Rc1/8 (6mm) *1	B	110 *2	60	200
		C	95 *2	50	200
YS13 (for meter size : 45)	Rc1/4 (8mm)	B	80	60	200
		C	65	50	200

*1: Meter sizes 40 and 41 with R1/4xRc1/8 bushings.
 (Bushings are contained in the same package as the strainer.)
 *2: Dimensions with bushing installed (for reference purpose)

Unit in mm

● Outline (Material:B)

● Outline (Material:C)

● Product code

Item	Code No.					Description
	①	②	③	④	⑤	
Model	Y	S				M-III strainer
Nominal size	1	2				Rc 1/8 (Meter size 40, 41)
	1	3				Rc 1/4 (Meter size 45)
Material			B			FC200
			C			SCS14A

The specification as of Mar., 2012 is stated in this GS Sheet. Specifications and design are subject to change without notice.

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GS.No.GBB340E

初版	改訂	印刷
95.01	12.03	