SPECIFICATIONS

Individual specifications

Item \ Type / Model No.		Resin body type					
		FM-252-4(-P)	FM-213-4(-P)	FM-253-4(-P)	FM-214-4(-P)	FM-254-8(-P)	FM-215-8(-P)
Full scale flow rate (Note 1)		500 mℓ/min.	1,000 mℓ/min.	5 ℓ/min.	10 ℓ/min.	50 ℓ/min.	100 ℓ/min.
Instant flow rate	Display range (Note 2)	–550 to +550 mℓ/min.	–1,100 to +1,100 mℓ/min.	–5.5 to +5.5 ℓ/min.	–11 to +11 ℓ/min.	–55 to +55 ℓ/min.	–110 to +110 ℓ/min.
	Setting and display resolution	1 mℓ/min.		0.01 ℓ/min.		0.1 ℓ/min.	
Integrated flow rate	Display range (Note 2)	±9999999 mℓ		±99999.99 ℓ		±999999.9 ℓ	
	Setting and display resolution	1 mℓ		0.01 ℓ		0.1 ℓ	
Specified integrated value		5 mℓ	10 mℓ	0.05 ℓ	0.1 ℓ	0.5 ℓ	1 ℓ
Port size		ø4 ø0.157 push-in				ø8 ø0.315 push-in	
Weight		Net weight: 50 g approx., Gross weight: 115 g approx.				Net weight: 70 g approx., Gross weight: 135 g approx.	

Item \ Type / Model No.		Aluminum body type			
		FM-255-AR2(-P)	FM-255-AG2-P	FM-216-AR2(-P)	FM-216-AG2-P
Full scale flow rate (Note 1)		500 ℓ/min.		1,000 ℓ/min.	
Instant flow rate	Display range (Note 2)	–550 to +550 ℓ/min.		–1,100 to +1,100 ℓ/min.	
	Setting and display resolution	1 ℓ/min.			
Integrated flow rate	Display range (Note 2)	±9999999 ℓ			
	Setting and display resolution	1 ℓ			
Specified integrated value		5 ℓ		10 ℓ	
Port size		Rc1/2 female thread	G1/2 female thread	Rc1/2 female thread	G1/2 female thread
Weight		Net weight: 155 g approx., Gross weight: 220 g approx.			

Common specifications

Item \ Type / Model No.		NPN output type	PNP output type
		FM-2□	FM-2□-P
Rated pressure range		−0.09 to +0.7 MPa	
Pressure withstandability		1 MPa	
Applicable fluid		Clean air (Note 3), compressed air (Note 3), nitrogen gas	
Supply voltage		12 to 24 V DC ± 10 % Ripple P-P10 % or less	
Current consumption		Normal mode: 60 mA or less, ECO mode: 40 mA or less	
Comparative outputs (Comparative output 1 / Comparative output 2)		NPN open-collector transistor • Maximum sink current: 50 mA or less • Applied voltage: 26.4 V DC or less (between comparative output and 0 V) • Residual voltage: 2.4 V or less (at 50 mA sink current)	PNP open-collector transistor • Maximum source current: 50 m A or less • Applied voltage: 26.4 V DC or less (between comparative output and +V) • Residual voltage: 2.4 V or less (at 50 mA source current)
	Output modes	Output OFF mode, window comparator mode, hysteresis mode, integrated output mode, integrated pulse output mode	
	Short-circuit protection	Incorporated	
	Hysteresis	Window comparator mode: 1 to 8 % F.S. approx. (variable) (Factory settings: approx. 1 % F.S.), Hysteresis mode: Variable (minimum 1 digit)	
	Response time	50 ms, 80 ms, 120 ms, 200 ms, 400 ms, 800 ms, 1,500 ms, selectable by key operation	
Analog voltage output		Output voltage: 1 to 5 V, Output impedance: 1 kΩ approx. [Refer to "**Analog voltage output**" (p.7) for more details.]	
Repeatability		Within ±1 % F.S.	
External input		ON voltage: 0 to +0.4 V OFF voltage: +5 V to +V, or open Input time: 80 ms or more	ON voltage: +5 V to +V OFF voltage: 0 to +0.6 V, or open Input time: 80 ms or more
Linearity		Within ±3 % F.S. (Ambient temperature +25 °C +77 °F, flow rate range 3 to 100 % F.S., atmospheric criteria on secondary side)	
Display		4 digits + 4 digits 2-color LCD display (Display refresh rate: 250 ms, 500 ms, 1,000 ms, selectable by key operation)	
Environmental resistance	Protection	IP40 (IEC)	
	Ambient temperature	0 to +50 °C +32 to +122 °F (No dew condensation allowed), Storage: -10 to +60 °C +14 to +140 °F	
	Ambient humidity	35 to 90 % RH, Storage: 35 to 90 % RH	
	Voltage withstandability	1,000 V AC for one min. between all supply terminals connected together and enclosure (Excluding the aluminum body type)	
	Insulation resistance	10 MΩ, or more, with 500 V DC megger between all supply terminals connected together and enclosure (Excluding the aluminum body type)	
	Vibration resistance / Shock resistance	10 to 150 Hz frequency, 0.75 mm 0.030 in amplitude or 49 m/s² max. acceleration, in X, Y and Z directions for two hours each / 100 m/s² acceleration (10 G approx.) in X, Y and Z directions for three times each	
Temperature characteristics		Within ±0.2 % F.S./°C (+25 °C +77 °F criteria, +15 to +35 °C +59 to +95 °F ambient temperature range)	
Pressure characteristics		Within ±5 % F.S. (-0.09 to +0.7 MPa, +25 °C +77 °F, atmospheric criteria on secondary side)	
Enclosure earthing		Floating (Note 4)	
Material		Enclosure: ABS, Body: Polyamide (Aluminum body type: Aluminum), Switch: EPDM, Display: Acrylic, Mounting screw part (Resin body type): Brass Cuurent plate / port filter: Stainless steel (used for the gas contact area), Sensor chip: Silicon, Gasket: Fluorine rubber	
Connecting method		Connector	
Cable length		Total length up to 10 m 32.808 ft is possible with 0.3 mm², or more, cable.	
Accessory		**CN-F15-C1** (Connector attached cable 1 m 3.281 ft): 1 pc.	

Notes: 1) Converted to volumetric flow at +20 °C +68 °F and 1 atmospheric pressure (101 kPa).
2) The display flow rate range is the case when setting to bi-direction at the flow direction setting. When the flow direction is set to one-side forward direction or one-side reverse direction, the negative side of the display flow rate range shows 10 % of the full-scale (F.S.).
3) The clean air complies with JIS B 8392-1.1.1 to 5.6.2, and the compressed air complies with JIS B 8392-1.1.1 to 1.6.2.
4) As a varistor (clamping voltage: approx. 40 V) is connected to the aluminum body type, do not apply voltage higher than the rated voltage of the sensor.