



# TECHNICAL GUIDANCE

Compact & High performance

## HM9700A

THERMAL MASS FLOWMETER

### OUTLINE

HM9700A is a compact and high performance thermal mass flowmeter with the digital indicator, current output, and alarm output. It is most suitable for the flow measurement and control of the various kinds of gases from small to large scale applications.

### FEATURES

- Compact design and high performance
- Direct mass measurement by thermal theory
- Any position available
- Signal output : 4 to 20mA DC
- Integrated digital indicator
- 24V DC power supply

### MAIN APPLICATIONS

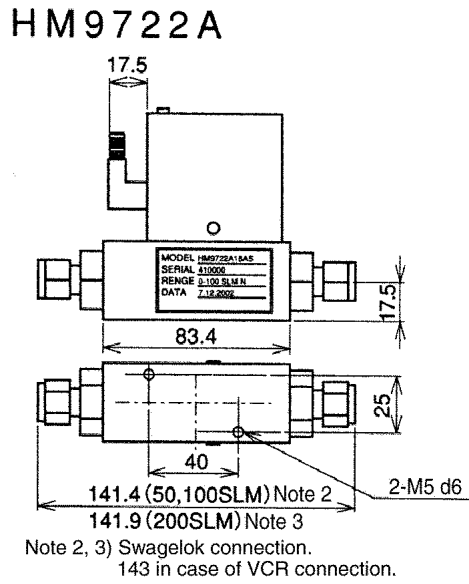
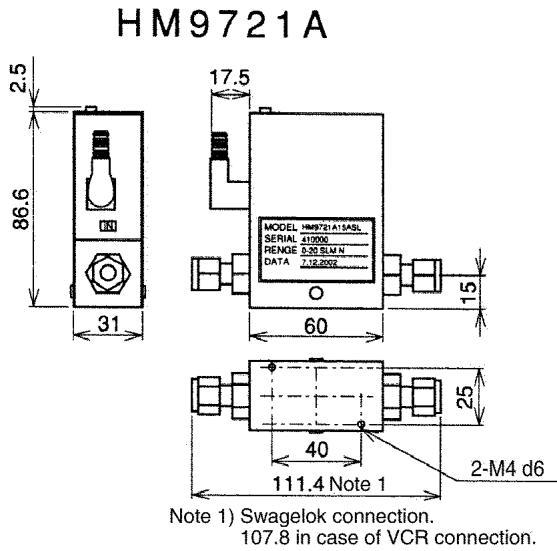
- Utility gas supply lines in industries
- Monitoring of various gas lines
- Various instruments for analysis
- Welding, laser instrument, and gas charging applications
- Flow switch for safety operation at various plants



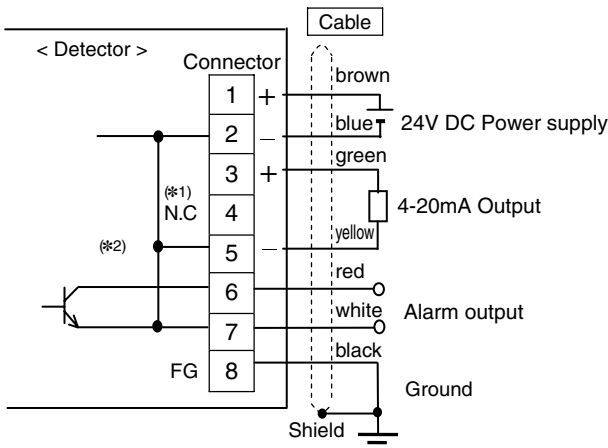
### STANDARD SPECIFICATION

Model	HM9721A	HM9722A	
Scale range	1 L/min (nor) to 20 L/min (nor)	50 L/min (nor), 100 L/min (nor)	200 L/min (nor)
Accuracy	Output : $\pm 2\%$ F.S. Indication: $\pm 2\%$ F.S. + 1 digit Alarm action : $\pm 0.5\%$ F.S. + 1 digit of set value		
Linearity	$\pm 1\%$ F.S.		
Reproducibility	$\pm 0.5\%$ F.S.		
Response	Approx. 3 seconds (98% of Span)		
Max. operating pressure / Test pressure	970kPa / 1470kPa		
Pressure loss	4.9kPa	9.8kPa	
Leak standard	$1 \times 10^{-8}$ Pa • m <sup>3</sup> /s (He) or below		
Indicator	LED 3 1/2 digit	Alternative indication of flow rate and alarm set value	
Output signal	4 to 20mA DC / Load resistance 500 $\Omega$ max.		
Alarm setting	0 to full scale : By potentiometer		
Alarm output	Low alarm : Normal open Hysteresis: Approx. 1% Open collector Load rating : 30V DC, 100mA (Non-insulation)		
Operating temp. / Ambient. temp.	5 to 45°C		
Material of wetted part	SUS316, FKM		
Fitting	$\phi 1/4$ " SWL / VCR	$\phi 3/8$ " SWL / $\phi 1/2$ " VCR	$\phi 1/2$ " SWL / VCR
Position of installation	Free		
Mass	Approx. 600g	Approx. 700g	
Dimension (Length x Width x Height)	SWL : 111.4x31x86.6 VCR : 107.8x31x86.6	SWL : 141.4x35x91.7 VCR : 143x35x91.7	SWL : 141.9x35x91.7 VCR : 143x35x91.7
Power supply	24V DC $\pm 10\%$ 70mA		
Power consumption	1.7W		
Accessory	Connector with cable (Std. 2m)		

**DIMENSION**



**WIRING**



(\*1) N.C. stands for "No Connection" which means the fourth terminal shall not be used.  
 (\*2) Power supply: 4-20mA, and the alarm output is connected inside and non-insulated circuit.

**SCALE RANGE**

Code	Scale range
10	1 L/min (nor)
11	2 L/min (nor)
13	5 L/min (nor)
14	10 L/min (nor)
15	20 L/min (nor)
17	50 L/min (nor)
18	100 L/min (nor)
19	200 L/min (nor)

• The scale range is for N<sub>2</sub> gas.  
 • The calibration criterion is 0°C and 1013hPa.

**MODEL CODE**

HM972	<input type="checkbox"/>	A	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Description
Range category	1						1 L/min(nor) to 20 L/min(nor)
	2						50 L/min(nor) to 200 L/min(nor)
(Fixed code)		A					Version code
Scale range			**				Refer to SCALE RANGE table.
Type of Gas			A				N <sub>2</sub>
			B				Air
			C				O <sub>2</sub>
			D				H <sub>2</sub>
			E				He
			F				Ar
			Z				Others
Fitting					S		Swagelok [Std.]
					R		VCR [Option]
Flow direction					L		Left to Right
					R		Right to Left

\* Specification is subject to change without notice.

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