CMQ-V

Digital Mass Flow Controller (Hydrogen and Helium)

The CMQ-V is a digital mass flow controller that combines Yamatake's Micro Flow thermal mass-flow rate sensor and a proportioning solenoid valve with advanced actuator technology. The result is a high-performance and low-cost next-generation controller. Developed for general industrial use, the CMQ-V was designed with high-speed, wide-rangeability flow control needs in mind.



Specifications

Model No.	MQV9500 MQV0005		MQV0010	MQV0050	MQV0200	MQV0500	MQV1000						
Valve type	Proportional solenoid valve												
Standard full-scale flow rate	0.500L/min (standard)	5.00L/min (standard)	10.00L/min (standard)	50.0L/min (standard)	200L/min (standard)	500L/min (standard)	1000L/min (standard)						
	"Standard" refers to the	tandard" refers to the flow rate adjusted for 20°C, 101.325kPa (1 atmosphere).											
Gas types	Hydrogen, helium. Gas	ydrogen, helium. Gas must be dry and without corrosive components (chlorine, sulfur, acid, etc.). It must also be clean, without dust or oil mist.											
Accuracy (at standard temperature and	±0.5% FS (0% FS ≤ Q	2.5% FS (0% FS ≤ Q ≤ 40% FS), ±1.0% FS (40% FS < Q ≤ 80% FS), ±2.0% FS (80% FS < Q ≤ 100% FS) ±1% FS (0% FS < Q ≤ 80% FS)											
differential pressure; Q is flow rate)	±2.0% FS (80% FS < Q ≤ 100% FS)												
Operating differential pressure range	300kPa max.						(1) 300kPa max.						
(T is operating temperature)							(-10°C ≤ T ≤ 40°C)						
							(2) 180kPa max.						
							(40°C < T ≤ 60°C)						
							(when power						
							= 24.0Vdc)						
Operating temperature	-10 to +60°C												
Operating humidity	10 to 90% RH (no cond	0 to 90% RH (no condensation allowed)											
Flow rate setting methods	(1) Key input, (2) exter	1) Key input, (2) external analog input, (3) PC, using dedicated connector, (4) RS-485 communications (3-wire type)											
External analog input	0-5Vdc, 1-5Vdc, 0-20	0-5Vdc, 1-5Vdc, 0-20mA, or 4-20mAdc (selectable)											
Output type	Instantaneous flow rate	Instantaneous flow rate (PV) or flow rate set point (SP) (selectable)											
Output range	0-5Vdc, 1-5Vdc, 0-20	0-5Vdc, 1-5Vdc, 0-20mA, or 4-20mAdc (selectable)											
No. of alarm/event outputs	Alarm: 1. Event: 2												
No. of external switching inputs	3-way switching: 1	External contact inputs ((2-way switching): 3										
Power (T is operating temperature)	24Vdc												
Current consumption	300mA max.					400mA max.							
Mass	Approx. 1.2kg					Approx. 3.5kg							

Selection Guide | IIIIIIVVVVVIVIIXXXIII Example: MQV9500BSRH000100

Segment	Model No. selection			Description					
- 1	Basic No. MQV ↓ ↓			\downarrow	Digital mass flow controller				
Ш	Flow rate range	9500	0	-	0.004 to 0.500L/min (standard)				
		0005	0	-	0.04 to 5.00L/min (standard)				
		0010	0	-	0.10 to 10.00L/min (standard)				
		0050	0	-	0.4 to 50.0L/min (standard)				
		0200	0	-	2 to 200L/min (standard)				
		0500	-	0	4 to 500L/min (standard)				
		1000	-	0	10 to 1000L/min (standard)				
111	Display	B O - Integrated display							
		С	0	-	Separate display				
		J	-	0	Integrated display (150mm side-to-side)				
		к			Separate display (included)				
		I.	-	0	(150mm side-to-side)				
IV	Material	S	0	0	SUS316, Teflon, Viton				
V	V Connection	R	0	-	Rc 1/4"				
			-	0	Rc 1/2"				
		s	0	-	1/4" Swagelok				
			-	0	1/2" Swagelok				
		v	0	-	1/4" VCR				
		V	-	0	3/8" VCR				
	U	0	-	9/16-18 UNF					
		-	0	3/4-16 UNF					
VI	Gas type	Н	0	0	Hydrogen/helium (selectable)				
VII	Option 1	0	0	0	None				
VIII Option 2		0	0	0	None				
	1		0	0	RS-495 (CPL) communications				
IX	Option 3	0	0	0	None				
X	Option 4	1	0	0	Oil-inhibiting treatment for gas-contacting parts				
XI	XI Option 5 0 O		0	None					
			0	0	With inspection data				
		Υ	0	0	With traceability certification				
XII	Design code	0	0	O None					

A circle (O) denotes availability.

Note: The controllable flow rate range varies according to the gas type. See table.

Accessories (sold separately)

Model No.	Name	Description
81446681-001	Cable with dedicated connector	2m 20-core flat cable
81446951-001	Cable with dedicated connector	5m 20-core shielded cable
81446957-001	AC adapter	Rating: 24Vdc, 650mA
81446683-002	Potentiometer for setting flow rate	Digital dial, 5kΩ, 10 turns
81446858-001	Front cover for separate display	Resin

Control Flow Rate Range and Resolutions

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

Specifica-	- MQV9500		MQV0005		MQV0010		MQV0050		MQV0200		MQV0500		MQV1000	
tions	Control flow	Setting/display	Control flow	Setting/display	Control flow	Setting/display	Control flow	Setting/display	Control flow	Setting/display	Control flow	Setting/display	Control flow	Setting/display
	rate range	resolution	rate range	resolution	rate range	resolution	rate range	resolution	rate range	resolution	rate range	resolution	rate range	resolution
Gas type	L/m	in	L/min		L/min		L/min		L/min		L/min		L/min	
Hydrogen	0.004 to 0.500	0.002	0.04 to 5.00	0.02	0.10 to 10.00	0.05	0.4 to 50.0	0.2	2 to 200	1	4 to 500	2	10 to 1000	5
Helium	0.004 to 0.500	0.002	0.04 to 5.00	0.02	0.10 to 10.00	0.05	0.4 to 50.0	0.2	2 to 200	1	4 to 500	2	10 to 1000	5

Dimensions (Unit: mm)



