Notes on Model Selection Before installation and use, please read the notes and precautions in the user's manual

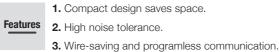
- Do not use the product for gas that is within its explosive limits. Doing so may result in an explosion.
- If an abnormality in the controller is likely to result in damage, an appropriate redundant design should be used.
- If there is a possibility of foreign matter entering the device, install an upstream filter, strainer, or mist trap capable of eliminating foreign matter 0.1 µm or greater in diameter, and be sure to periodically inspect and replace the filter.
- When the device is used to control the air-to-fuel ratio of a burner, implement measures in the instrumentation to prevent backfires from occurring and to prevent a backfire from affecting the device if one does occur.
- Increased pressure or flames in the piping due to a backfire from a burner can cause device failure.
- Do not connect a device with large turndown or pressure loss near the downstream side of the device. Doing so may cause hunting.
- If there is a possibility of a lightning surge, use a surge absorber (surge arrester). Otherwise, a fire may result or the device may fail.
- If the gas must be completely stopped, install a separate shutoff valve. This device's valve cannot completely shut off the gas.
- Do not install the device in places like those listed below.
- Where the temperature and humidity exceed the specified limits
- Where the temperature changes rapidly or where there is condensation
- Places with sulfide or other corrosive gas
- Places with flammable gas, liquid, or vapors
- Where the atmosphere contains much dust, salt content, conductive matter (e.g., iron powder), waterdrops, oil mist, organic solvents, etc.
- Places with mechanical vibration or impact that are outside of the specified ranges
- Where the device is exposed to direct sunlight, wind, or rain
- Where the device is splashed by oil or chemicals
- Under a high-voltage cable or near a welding machine or other source that emits electrical noise
- Places affected by an electromagnetic field
- Do not allow gas containing hydrogen to enter model F4Q0500. Doing so may cause device failure.
- To learn whether the device can be used for a gas other than the standard ones, please ask us in advance. Using a non-standard gas may cause the device to fail.

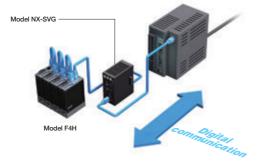
Related Products

Compact Digital Mass Flow Controller Model F4H

Compact size has been achieved by narrowing down the functions from model F4Q. This is the mass flow controller that contributes to the total cost reduction of equipment. Please see CP-PC-1590E for details.







*Programless communication is the feature when using Smart Device Gateway NX-SVG.

Please read "Terms and Conditions" from the following URL before ordering and use https://www.azbil.com/products/factory/order.html

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azbil

High-speed response, low pressure loss, high accuracy, and a wealth of functions



Azbil Corporation

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Advanced Automation Company

Digital Mass Flow Controller Model F4Q CE 24 🕅

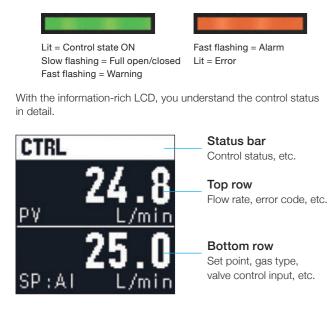
Advanced high-speed response, low pressure loss, and high-accuracy digital mass flow controllers

-

Large LED and liquid crystal displays show control status at a glance Higher accuracy in a wide range of flow rates New functions to solve problems with flow rate control

Understand the status of control at a glance

The color and state (e.g., flashing) of the LED indicator show the control status.

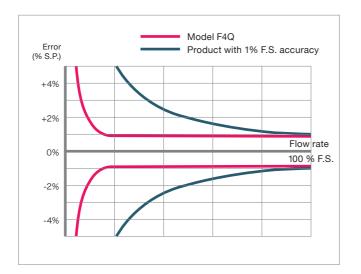


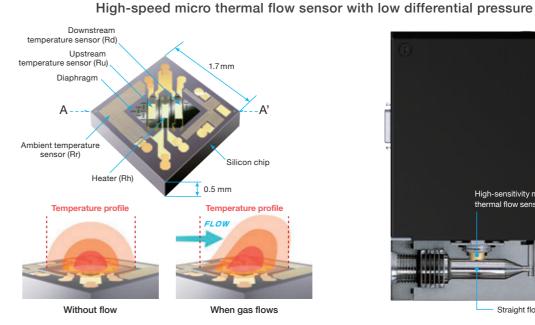
Accuracy of 1 % S.P. in a wide range of flow rates

High-accuracy control for high and low flow rates. Great for applications where the flow rate set point changes significantly.

azbil

25.0 25.0

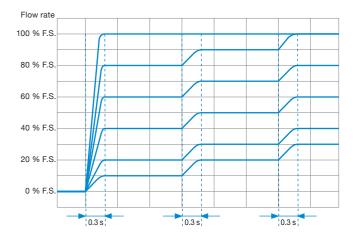




When there is no gas flow, the temperature distribution around the heater is symmetrical. When gas starts to flow the temperature upstream of the heater decreases and the temperature downstream of the heater increases, distorting the symmetry of the temperature distribution. The temperature sensor detects this temperature difference to calculate the speed of the flow.

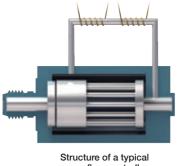
High-speed response of 0.3 seconds over a wide range of flow rates

Response is fast whether starting control with a fully closed valve or changing the settings. Even when the flow rates of multiple gases are changed at the same time, their ratio can be retained.

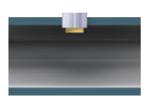


Low-differential pressure structure allows control of low-pressure gas

The pressure loss on a straight flow path is low, so this controller can control low-pressure gas (e.g., fuel gas).



mass flow control



Structure of model F4Q



- Straight flow path with low pressure loss

The gas comes into direct contact with the micro thermal flow sensor which has an extremely small thermal capacity. This makes instantaneous detection of flow rate changes possible, even when the flow speed is very low. The result is high-speed response over a wide range of flow rates, with only low pressure loss in the straight flow path.

Easy-to-read display in any installation orientation

The display can be rotated to suit the installation orientation. The control key layout also changes based on the display orientation.



Separate display unit models for flexible installation layout

Models with a separate display unit can be installed in an easy-to-see location while the unit itself is in a place where pipe connections are easy. The separate display unit models can also be installed in any orientation.



Greater resistance to environmental conditions

Strong metal connectors and a structure with no gaps give it margin when the controller is used in a dusty environment.



Usable in a wide temperature range, from -10 to +60 °C The controller can be used in a cold room in winter or near a hot

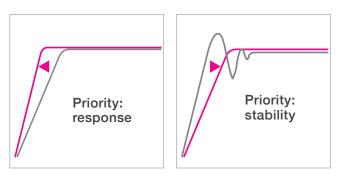
industrial furnace. Even when the temperature changes greatly, its effect on the measured values is minimal.

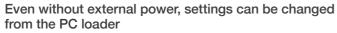


Fine adjustment of control

The PID settings make fine adjustment of control possible. You can adust for control that prioritizes response or control that prioritizes stability, whichever suits the application.

% Even without PID adjustment, the controller satisfies the response specified in the specifications.





Power for the controller can be supplied through the USB cable of the PC loader, so settings of the controller can be changed even when it is not otherwise powered.

% Flow control is not possible when power is supplied from a USB cable.



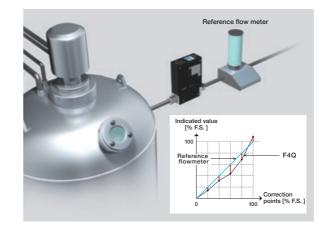
Brazing and burner work

Thanks to high-speed response, when the flame intensity is changed, the flame instantaneously stabilizes, contributing to stable product quality and reduced takt time.



Baking furnace for MLCCs

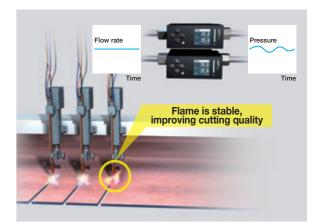
The operating temperature range is a wide -10 to 60 °C and the effect of ambient temperature changes on flow rate control is small. A stable atmosphere in the furnace also helps to stabilize the quality of baking.



Culture apparatus

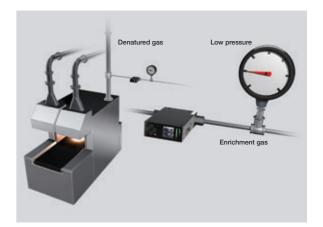
The multiple-point flow rate correction function makes matching to a reference flowmeter possible during onsite calibration. It is not necessary to send the controller to the manufacturer for calibration, so costs can be cut and delivery schedules can be shortened.

Sample applications



Gas cutting

Thanks to high-speed response, even when the source pressure changes, there is very little effect on the flow rate. The flame remains stable, which improves the cutting quality.



Gas carburizing furnace

Thanks to low pressure loss, model F4Q can control the flow rate of low-pressure enrichment gas, which is not possible with typical mass flow controllers. Better control of the atmosphere in the furnace can stabilize the quality of carburization.



Experiments

With an AC adapter, the controller can be powered from a wall socket, eliminating the need for troublesome wiring. Operation, monitoring, and data logging from a PC can be done using the PC loader. An experimental environment can be set up in a short period of time.

Control flow rate ranges according to gas type

Models with fluororubber gasket

Models	F4Q9200	F4Q9500	F4Q0002	F4Q0005	F4Q0020	F4Q0050 (length: 90 mm)	F4Q0100	F4Q0050 (length: 150 mm)	F4Q0200	F4Q0500 (Available soon)
Control flow rate ranges	mL/min					L/min				
Air, nitrogen	2 to 200	0.005 to 0.5	0.02 to 2	0.05 to 5	0.2 to 20	0.5 to 50	1 to 100	0.5 to 50	2 to 200	5 to 500
Oxygen	2 to 200	0.005 to 0.5	0.02 to 2	0.05 to 5	0.2 to 20	0.5 to 50	1 to 100	0.5 to 50	2 to 200	5 to 500
Argon	2 to 200	0.005 to 0.5	0.02 to 2	0.05 to 5	0.2 to 20	0.5 to 50	1 to 100	0.5 to 50	2 to 200	5 to 500
Carbon dioxide	1.2 to 120	0.003 to 0.3	0.012 to 1.2	0.03 to 3	0.12 to 12	0.3 to 30	0.8 to 80	0.3 to 30	1.2 to 120	4 to 400
City gas (45 MJ/m ³)	2 to 200	0.005 to 0.5	0.02 to 2	0.05 to 5	0.2 to 20	0.5 to 50	0.8 to 80	0.5 to 50	2 to 200	5 to 500
Methane (100 %)	2 to 200	0.005 to 0.5	0.02 to 2	0.05 to 5	0.2 to 20	0.5 to 50	0.9 to 90	0.5 to 50	2 to 200	5 to 500
Propane (100 %)	0.6 to 60	0.0016 to 0.16	0.006 to 0.6	0.016 to 1.6	0.06 to 6	0.16 to 16	0.32 to 32	0.16 to 16	0.6 to 60	2 to 200
Butane (100 %)	0.5 to 50	0.0012 to 0.12	0.004 to 0.4	0.012 to 1.2	0.04 to 4	0.1 to 10	0.2 to 20	0.1 to 12	0.4 to 40	2 to 150

Models with EPDM gasket

Models	F4Q9200	F4Q9500	F4Q0002	F4Q0005	F4Q0020	F4Q0050 (length: 90 mm)	F4Q0200	F4Q0500 (Available soon)
Control flow rate ranges	mL/min				L/min			
Acetylene (C ₂ H ₂)	2 to 120	0.005 to 0.3	0.02 to 1.2	0.05 to 3	0.2 to 12	0.5 to 30	1 to 120	4 to 360
Ammonia (NH3)	3 to 160	0.007 to 0.4	0.03 to 1.6	0.07 to 4	0.3 to 16	0.7 to 40	2 to 160	4 to 400
Air, nitrogen	2 to 200	0.005 to 0.5	0.02 to 2	0.05 to 5	0.2 to 20	0.5 to 50	2 to 200	5 to 500
Argon	2 to 200	0.005 to 0.5	0.02 to 2	0.05 to 5	0.2 to 20	0.5 to 50	2 to 200	5 to 500
Carbon dioxide	1.2 to 120	0.003 to 0.3	0.012 to 1.2	0.03 to 3	0.12 to 12	0.3 to 30	1.2 to 120	4 to 400

* The control flow rate ranges and display resolution can be changed. (E.g., for F4Q9200, depending on the decimal place setting, from 2 to 200 mL/min, or from 2.000 to 200.000 mL/min.)

Supported gas types

Best: recommended, OK: usable

	O vina material			Gas	types		
	O-ring material	Air, nitrogen	Oxygen	Argon	Carbon dioxide	City gas	Methane (100 %)
F4Q with fluororubber gasket	Fluororubber	Best	Best	Best	Best	Best	Best
F4Q with EPDM rubber gasket	Ethylene propylene rubber	ОК		OK	OK		
	O-ring material		Gast	types			
	O-mig material	Propane (100 %)	Butane (100 %)	Acetylene (C2H2)	Ammonia (NH3)		

Best

Best

Best

F4Q with fluororubber gasket	Fluororubber	Best
F4Q with EPDM rubber gasket	Ethylene propylene rubber	

* For use with hydrogen and helium, please contact Azbil corporation.

* For gases other than the above, please contact Azbil Corporation.

Optional parts (sold separately)

Item	Model No.	Appearance	Application
Dedicated cable with half-pitch connector (2 m)	F9Y4QHP2	\mathbf{O}	20-core cable assembly for controller *1
Dedicated cable with half-pitch connector (5 m)	F9Y4QHP5		power and signal connections
MQV-F4Q conversion harness	F9Y4QA1		Conversion harness for connecting a 20-core flat cable for model MQV to the F4Q *1
AC adapter made by UNIFIVE Co., Ltd.	UU318-2475	8	AC adapter for supplying power from a commercial power outlet to the controller. Use in combination with a harness (F9Y4QA2).
Conversion harness for AC adapter	F9Y4QA2		A conversion harness for supplying power to the controller using anoptional AC adapter (UU318-2475).
Mounting bracket for 90 mm controller	F9Y4QB1		Bracket for installing a controller with a length of 90 mm
Mounting bracket for 150 mm controller	F9Y4QB2		Bracket for installing a controller with a length of 150 mm
PC loader	MLP-F4Q		This allows you to operate, monitor and datalog of model F4Q from your PC. It can be downloaded free of charge from the Azbil website. https://www.azbil.com/products/factory/factory-product/ flowmeter/mass-flow-controller/f4q/software/index.html
Netwaork Instrumentation Module Smart Device Gateway	NX-SVG		You can build communication between model F4Q and various devices without programming. *2 Please see CP-PC-1597E for details.

*1 Depending on the customer's usage conditions, the cable should be renewed every 5 to 10 years, just like the main unit.

*2 A communication gateway that allows the interchange of information between various kind of control device without programming, enabling smarter development work.

Selection Guide

90 mm models with fluororubber gasket and EPDM gasket

Basic model No.			rd fl ang		Туре	Flow path material	Piping method	Gas type	Comm. type	O-ring material	Option 1	Option 2	Option 3	Suffix	Description
F 4 Q															
	9	2	0	0											2 to 200 mL/min (normal) *1
	9	5	0	0											0.005 to 0.5 L/min (normal) *1
	0	0	0	2											0.02 to 2 L/min (normal) *1
	0	0	0	5											0.05 to 5 L/min (normal) *1
	0	0	2	0											0.2 to 20 L/min (normal) *1
	0	0	5	0											0.5 to 50 L/min (normal) *1
	0	1	0	0											1 to 100 L/min (normal) *1 *2
					В										Integrated display
					С										Separate display
						6									SUS316
							Т								Rc 1/4"
							S								1/4" Swagelok joint *3 (In use of 0100 change to 3/8" Swagelok joint)
							V								1/4" VCR joint *2 *3 (In use of 0100 change to 1/2" VCR joint)
							U								9/16-18 UNF *2
								Ν							Air, nitrogen *4
									1						RS-485 comm. (CPL/ModbusRTU selectable)
										0					Fluororubber
										E					EPDM *5
											0				None
												0			None
													0		None
													D		With inspection certificate
													Y		With inspection certificate + traceability
														0	Product version

• 150 mm models with fluororubber gasket and EPDM gasket

Basic model No.	Sta ra	nda ate r			Туре	Flow path material	Piping method	Gas type	Comm. type	O-ring material	Option 1	Option 2	Option 3	Suffix	Description
F 4 Q															
	0	0	5	0											0.5 to 50 L/min (normal) *1 *2 *6
	0	2	0	0											2 to 200 L/min (normal) *1
	0	5	0	0											4 to 500 L/min (normal) *1 *7 (Available soon)
					J										Integrated display
					К										Separate display
						6									SUS316
							Т								Rc1/2"
							S								1/2" Swagelok joint *3
							V								1/2" VCR joint *2 *3
							U								3/4-16 UNF *2
								Ν							Air, nitrogen *4
									1						RS-485 comm. (CPL/ModbusRTU selectable)
										0					Fluororubber
										E					EPDM *5
											0				None
												0			None
													0		None
													D		With inspection certificate
													Y		With inspection certificate + traceability
														0	Product version

*1. The control flow rate ranges are for air and nitrogen. *mL/min (normal)" and "L/min (normal)" indicate the volumetric flow rate (mL/min and L/min) converted to 0 °C and one atmosphere of pressure (101.3 kPa [abs]).

- *2. For O-ring material, only option 0, "Fuororubber," can be selected. ""EPDM" cannot be selected.
- *3. Before connecting with Swagelok or VCR joints, read the precautions in the instructions from the joint manufacturer.
- For details, refer to "Control flow rate ranges according to gas type" on page 05.
- *5. A controller with an EPDM gasket can only be used for the gases listed below. Otherwise, the sealing characteristics may be degraded. Supported gases: air, nitrogen, argon, carbon dioxide, ammonia, and acetylene *6. Models F4Q0050J and F4Q0050K are for low differential pressure.
- They can control up to a high flow rate at a lower differential pressure than models F4Q0050B and F4Q0050C.
- *7. Do not allow gas containing hydrogen to enter model F4Q0500. Doing so may cause device failure.

*4. The controller can be used for gases other than air and nitrogen by changing the setting. The controllable flow rate range varies depending on the gas type.

Specifications

Model No).	F4Q9200	F4Q9500	F4Q0002	F4Q0005	F4Q0020	F4Q0050	F4Q0100			
Valve typ	e		Proportional solenoid valve, normally closed when de-energized (N.C.)								
Standard f	ull-scale flow rate (air, nitrogen) *1	200 mL/min	0.5 L/min	2 L/min	5 L/min	20 L/min	50 L/min	100 L/min			
Gas type	*2	Air, nitrogen, oxygen, argon, carbon dioxide, city gas (45 MJ/m ³), methane (100 %), propane (100 %), butane (100 %)									
	Control range	1 to 100 % F.S.									
Control	Response *3		0.3 s for S.P. ± 2 % F.S. (typ.)								
Control	Accuracy (under reference conditions) (Q = flow rate) *4	±1 % S.P. (40≦Q≦100 %) ±0.4 % F.S. (1≦Q<40 %)			% S.P. (15≦Q≦100 15 % F.S. (1≦Q<15			±1.5%S.P. (60≦Q≦100%) ±0.9%F.S. (1≦Q<60%)			
	Standard differential pressure		200 kF	Pa (inlet pressure: 20	0 kPa [gauge], outl	et pressure: 0 kPa [gauge])	•			
Pressure	Operating differential pressure range *5	50 3to 300 kPa	5 to 300 kPa	50 to 300 kPa	5 to 300 kPa	50 to 300 kPa	100 to 300 kPa	200 to 400 kPa			
i iessuie	Allowable inlet pressure				0.5 MPa (gauge)						
	Pressure resistance				1 MPa (gauge)						
	Ambient operating temperature	-10 to 60 °C									
External I	eakage			1 × 10 ⁻⁸ Pa·m ³ /s	(He) (O-ring leakag	e is not included)					
Analog I/C	Input types	DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable)									
	Output types	DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable)									
Digital I/O	Digital inputs		,			low rate zero correc ent selection, alarm					
	Digital outputs		3 (Totalization	oulse output, contro	I state ON, full oper	n ON, full closed ON	I, error ON, etc.)				
Commun	ications *6		(1) USB 2.0, (2)	RS-485 comm. (3-	wire system, CPL o	r ModbusRTU selec	table by setting				
Dowor	Rating			24 V DC, cu	rrent consumption 3	300 mA max.					
Power	Isolation	The power circuit is isolated from the input/output circuits.									
Main mate	rial of gas-contacting parts *7			SUS31	6, Fluororesin, Fluor	rorubber					
Mounting	orientation *8	Horizontal (but top panel must not face downward) or vertical									
IP (protec	tion) rating *9		IP40								
Standard	s compliance			EN	61326-1、EN61326-	-2-3					

• 90 mm models with EPDM rubber gasket (for details, refer to CP-SP-1461E)

Model No	ι.	F4Q9200	F4Q9500	F4Q0002	F4Q0005	F4Q0020	F4Q0050			
Valve type Proportional solenoid valve, normally closed when de-energized (N.C.)										
Standard fu	ull-scale flow rate (air, nitrogen) *1	200 mL/min 0.5 L/min 2 L/min 5 L/min 20 L/min 50 L/min								
Gas type	*2		Air, nitrogen,	oxygen, argon, carbon	dioxide, acetylene *10,	ammonia *10				
	Control range	1 to 100 % F.S.								
Control	Response *3	0.3 s for S.P. ± 2 % F.S. (typ.)								
Sontion	Accuracy (under reference conditions) (Q = flow rate) *4	±1 % S.P. (40≦Q≦100 %) ±1 % S.P. (15≦Q≦100 %) ±0.4 % F.S. (1≦Q<40 %) ±0.15 % F.S. (1≦Q<15 %)								
	Standard differential pressure		200 kPa	(inlet pressure: 200 kPa		,				
	Operating differential pressure range *5	50 to 300kPa	5 to 300kPa	50 to 300kPa	5 to 300kPa	50 to 300kPa	100 to 300kPa			
Pressure	Allowable inlet pressure			0.5 MPa	(gauge)					
	Pressure resistance			1 MPa	(gauge)					
	Ambient operating temperature			-10 to	60 °C					
External le	eakage	1 × 10 ⁻⁸ Pa·m ³ /s (He) (O-ring leakage is not included)								
Analog I/O	Input types	DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable)								
Analog 1/O	Output types			DC 0 to 5 V, 1 to 5 V, 4	to 20 mA (selectable)	20 mA (selectable)				
Digital I/O	Digital inputs		,	tion, operation mode se selection, SP ramp con						
	Digital outputs		3 (Totalization pulse of	output, control state ON	l, full open ON, full clos	ed ON, error ON, etc.)				
Communi	cations *6		(1) USB 2.0, (2) RS-48	35 comm. (3-wire syste	m, CPL or ModbusRTU	selectable by setting				
Dannar	Rating			24 V DC, current cons	umption 300 mA max.					
Power Isolation The power circuit is isolated from the input/output circuits.										
Main mater	rial of gas-contacting parts *7	contacting parts *7 SUS316, Fluororesin, EPDM								
Mounting orientation *8 Horizontal (but top panel must not face downward) or vertical										
IP (protec	tion) rating *9			IP	40					
Standards compliance EN61326-1, EN61326-2-3										

*1. "mL/min" and "L/min" indicate the volumetric flow rate per minute converted to 0 °C and 101.325 kPa (one atmosphere). The controllable flow rate range varies depending on the gas type. Refer to "Control flow rate ranges by gas type" on page 05. *2. Gas must be dry, without corrosive components like chlorine, sulfur, and acid. It also must be clean, without dust or oil mist. *3. Value at the standard differential pressure. *4. Instrument error compared with our equipment under reference conditions. Reference conditions: • Fluid: air. • Inlet pressure: standard differential pressure ± 15 kPa (gauge). • Outlet pressure: atmospheric pressure. • Ambient temperature: 23 ± 2 °C. • Gas temperature: same as ambient temperature. • Operation mode: control. • Vibration/pulsation: none. • Warm-up time: at least 2 hours at ambient temperature, plus at least 30 minutes after power-on. • installation orientation: horizontal with display facing upward. • Upstream straight pipe length: any (excluding model F4Q0100), 25 mm (model F4Q0100). *5. The controller is operable even when the operating differential pressure is lower than the low limit, but the controllable flow rate range is smaller in that case. *6. USB 2.0 is used to connect Azbil's PC loader software. Micro USB Type-B (length 2 m max.) is supported. *7. The gas-contacting parts have been degreased. *8. When installed vertically, the measured values have an error which can be corrected by configuring the controller. Refer to the Digital Mass Flow Controller Model F4Q Detailed User's Manual (CP-SP-1461E) and the Digital Mass Flow Controller Model F4Q User's Manual for RS-485 Communication Functions (CP-SP-1458E). *9. Main unit: only when the connector is connected. Separate display unit: only the front of the display. *10. Cannot be selected in "Gas type selection." To use this gas, set a conversion factor in "User-set gas conversion factor."

Specifications

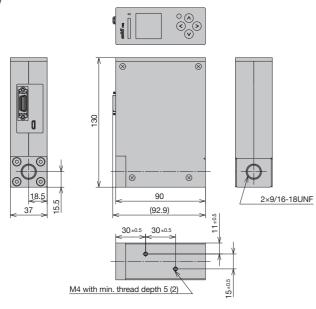
Model No).	F4Q0050	F4Q0200	F4Q0500 (Available soon)				
/alve typ	e	Proportional	solenoid valve, normally closed when de-ene	ergized (N.C.)				
Standard f	ull-scale flow rate (air, nitrogen) *1	50 L/min	200 L/min	500 L/min				
Gas type	*2	Air, nitrogen, oxygen, argon, carbon	dioxide, city gas (45 MJ/m ³), methane (100 %	6), propane (100 %), butane (100 %)				
	Control range		1 to 100 % F.S.					
	Response *3		0.7 s for S.P. ± 2 % F.S. (typ.)					
Control	Accuracy (under reference	±1.5 % S.P. (30 ≦ Q ≦ 100 %)	± 1 % S.P. (30 $\leq Q \leq 100$ %)	±1.5 % S.P. (20 ≦ Q ≦ 100 %)				
	conditions) (Q = flow rate) *4	± 0.45 % F.S. (1 $\leq Q < 30$ %)	± 0.3 % F.S. (1 $\leq Q < 30$ %)	±0.3 % F.S. (1 ≦ Q < 20 %)				
	Standard differential pressure	50 kPa (inlet pressure: 50 kPa [gauge], outlet pressure: 0 kPa [gauge])	200 kPa (inlet pressure: 200 kPa [ga	t pressure: 200 kPa [gauge], outlet pressure: 0 kPa [gauge])				
ressure	Operating differential pressure range *5	10 to 100 kPa	100 to 300 kPa	150 to 300 kPa				
	Allowable inlet pressure		0.5 MPa (gauge)	•				
	Pressure resistance		1 MPa (gauge)					
	Ambient operating temperature		-10 to 60 °C					
External I	eakane	1 x	10 ⁻⁸ Pa·m ³ /s (He) (O-ring leakage is not inclu	ded)				
Atomari			DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable)					
nalog I/O			, , , , , ,					
	Output types	- /	DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable)					
Digital I/O	Digital inputs		ion, operation mode selection, flow rate zero selection, SP ramp control gradient selection,					
	Digital outputs	3 (Totalization pulse o	utput, control state ON, full open ON, full clos	sed ON, error ON, etc.)				
Commun	ications *6	(1) USB 2.0, (2) RS-48	5 comm. (3-wire system, CPL or ModbusRTU	J selectable by setting				
	Rating		24 V DC, current consumption 400 mA max.					
ower	Isolation	The po	ower circuit is isolated from the input/output o	ircuits.				
/lain mate	rial of gas-contacting parts *7	SUS316, Fluorore	sin, Fluororubber	SUS316, Fluororesin, Fluororubber, SUS630 equival				
	orientation *8	Horizon	tal (but top panel must not face downward) or	r vertical				
-	tion) rating *9		IP40					
-	s compliance		EN61326-1, EN61326-2-3					
150	mm models with EPDN	I rubber gasket (for details, refer to CP-SP-	1461E)					
Model No).	F4Q0200	F	4Q0500 (Available soon)				
Model No /alve type). e	F4Q0200 Proportional	-	ergized (N.C.)				
Model No /alve type Standard f	o. e ull-scale flow rate (air, nitrogen) *1	F4Q0200 Proportional 200 L/min	F solenoid valve, normally closed when de-ene	rgized (N.C.) 500 L/min				
Model No /alve type Standard f	o. e ull-scale flow rate (air, nitrogen) *1 *2	F4Q0200 Proportional 200 L/min	F solenoid valve, normally closed when de-ene oxygen, argon, carbon dioxide, acetylene *10,	rgized (N.C.) 500 L/min				
Model No /alve type	e ull-scale flow rate (air, nitrogen) *1 *2 Control range	F4Q0200 Proportional 200 L/min	solenoid valve, normally closed when de-ene oxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S.	rgized (N.C.) 500 L/min				
Model No /alve type Standard f	o. e ull-scale flow rate (air, nitrogen) *1 *2	F4Q0200 Proportional 200 L/min Air, nitrogen, o	F solenoid valve, normally closed when de-ene boxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.)	ammonia *10				
Model No /alve type Standard f Gas type	e ull-scale flow rate (air, nitrogen) *1 *2 Control range	F4Q0200 Proportional 200 L/min	F solenoid valve, normally closed when de-end pxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %)	rgized (N.C.) 500 L/min				
Model No /alve type Standard f Gas type	e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference	F4Q0200 Proportional 200 L/min Air, nitrogen, or ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-end pxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %)	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%)				
Andel No falve type itandard f Bas type Control	e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4	F4Q0200 Proportional 200 L/min Air, nitrogen, or ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-energy poxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± ±	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%)				
Nodel No /alve type Standard f Gas type Control	e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure	F4Q0200 Proportional 200 L/min Air, nitrogen, or ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-energy poxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± ±	rgized (N.C.) 500 L/min ammonia *10 .1.5 % S.P. (20≦Q≦100%) .0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge])				
Model No /alve type Standard f Gas type Control	e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure range *5	F4Q0200 Proportional 200 L/min Air, nitrogen, or ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± ± inlet pressure: 200 kPa [gauge], outlet pressure	rgized (N.C.) 500 L/min ammonia *10 .1.5 % S.P. (20≦Q≦100%) .0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge])				
Vodel No /alve typ Standard f Gas type Control Pressure Operating	e eull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure *5 Allowable inlet pressure	F4Q0200 Proportional 200 L/min Air, nitrogen, or ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure: 0.5 MPa (gauge)	rgized (N.C.) 500 L/min ammonia *10 .1.5 % S.P. (20≦Q≦100%) .0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge])				
Vodel No /alve typ Standard f Gas type Control Pressure Operating conditions	o. e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure range *5 Allowable inlet pressure Pressure resistance Ambient operating temperature	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-end bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressu 0.5 MPa (gauge) 1 MPa (gauge)	ergized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa				
Vodel No /alve typ Standard f Gas type Control Pressure Operating conditions External I	b. e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure Pressure resistance Ambient operating temperature eakage Input types	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure: 0.5 MPa (gauge) 1 MPa (gauge) -10 to 60 °C 10° Pa·m³/s (He) (O-ring leakage is not include	ergized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa				
Andel No (alve type Standard f Gas type Control Pressure Operating conditions External I	b. e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure Operating differential pressure Pressure resistance Ambient operating temperature eakage Input types	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure 0.5 MPa (gauge) 1 MPa (gauge) -10 to 60 °C 10° Pa · m³/s (He) (O-ring leakage is not inclue DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable)	ergized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa				
Vodel No /alve typ Standard f Gas type Control Pressure Operating	b. e e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure Pressure resistance Allowable inlet pressure Pressure resistance Ambient operating temperature eakage Input types Output types Output types	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%) 200 kPa (100 to 300 kPa	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure: 0.5 MPa (gauge) 1 MPa (gauge) -10 to 60 °C 10° Pa·m³/s (He) (O-ring leakage is not include	ergized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded)				
Andel No /alve type Standard f Gas type Control Pressure Operating conditions External I vnalog I/O	b. e e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure range *5 Allowable inlet pressure Pressure resistance Ambient operating temperature eakage [nput types Duput types Digital inputs	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure 0.5 MPa (gauge) 1 MPa (gauge) -10 to 60 °C 10° Pa·m³/s (He) (O-ring leakage is not inclue DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable) DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable) ion, operation mode selection, flow rate zero selection, SP ramp control gradient selection,	ergized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) correction execution, alarm reset, etc.)				
Aodel No /alve typ Standard f Sas type Control Pressure Operating conditions External I malog I/O	b. e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure ange *5 Allowable inlet pressure Pressure resistance Ambient operating temperature eakage Input types Output types Digital inputs Digital outputs	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure: 0.5 MPa (gauge) 1 MPa (gauge) -10 to 60 °C 10° Pa·m³/s (He) (O-ring leakage is not inclue DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable) DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable) ion, operation mode selection, flow rate zero selection, SP ramp control gradient selection, utput, control state ON, full open ON, full close	rgized (N.C.) 500 L/min . ammonia *10 				
Aodel No /alve typ Standard f Sas type Control Pressure Operating conditions External I malog I/O	b. e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure mage *5 Allowable inlet pressure Pressure resistance Ambient operating temperature eakage Input types Output types Digital inputs Digital outputs *6	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure 0.5 MPa (gauge) 1 MPa (gauge) -10 to 60 °C 10° Pa·m³/s (He) (O-ring leakage is not inclue DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable) DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable) ion, operation mode selection, flow rate zero selection, SP ramp control gradient selection, utput, control state ON, full open ON, full close 5 comm. (3-wire system, CPL or ModbusRTL	rgized (N.C.) 500 L/min ammonia *10 .1.5 % S.P. (20≦Q≦100%) .0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) correction execution, alarm reset, etc.) sed ON, error ON, etc.)				
Aodel No (alve type Standard f Gas type Control Pressure Operating conditions External I malog I/O Digital I/O Commun	b. e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure rage *5 Allowable inlet pressure Pressure resistance Ambient operating temperature eakage Input types Output types Digital inputs Digital outputs ications *6 Rating	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure 0.5 MPa (gauge) 1 MPa (gauge) -10 to 60 °C 10° Pa • m³/s (He) (O-ring leakage is not inclue DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable) DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable) ion, operation mode selection, flow rate zero selection, SP ramp control gradient selection, utput, control state ON, full open ON, full closes 5 comm. (3-wire system, CPL or ModbusRTL 24 V DC, current consumption 400 mA max.	rgized (N.C.) 500 L/min ammonia *10 :1.5 % S.P. (20≦Q≦100%) :0.3 % F.S. (1≦Q<20%)				
Vodel No /alve typ Standard f Gas type Control Pressure Operating conditions External I	b. e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure Allowable inlet pressure Pressure resistance Ambient operating temperature eakage Input types Output types Digital inputs Digital outputs ications *6 Rating Isolation	F4Q0200 Proportional 200 L/min Air, nitrogen, q ±1 % S.P. (30≦Q≦1009 ±0.3 % FS. (1≦Q<30%)	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure 0.5 MPa (gauge) 1 MPa (gauge) -10 to 60 °C 10° Pa·m³/s (He) (O-ring leakage is not included by the second	rgized (N.C.) 500 L/min ammonia *10 :1.5 % S.P. (20≦Q≦100%) :0.3 % F.S. (1≦Q<20%)				
Vodel No /alve typ Standard f Gas type Control Pressure Operating conditions External I Analog I/O Digital I/O Commun	b. e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure Pressure resistance Allowable inlet pressure Pressure resistance Ambient operating temperature eakage Input types Output types Digital inputs Digital outputs ications *6 Rating Isolation rial of gas-contacting parts *7	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure 0.5 MPa (gauge) 1 MPa (gauge) -10 to 60 °C 10° Pa·m³/s (He) (O-ring leakage is not included by the second	rgized (N.C.) 500 L/min ammonia *10 :1.5 % S.P. (20≦Q≦100%) :0.3 % F.S. (1≦Q<20%)				
Aodel No (alve type) Standard f Gas type Control Pressure Operating conditions External I analog I/O Digital I/O Commun Power Aain mate	b. e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure Allowable inlet pressure Pressure resistance Ambient operating temperature eakage Input types Output types Digital inputs Digital outputs ications *6 Rating Isolation	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % FS. (1≦Q<30%)	F solenoid valve, normally closed when de-energy bxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure 0.5 MPa (gauge) 1 MPa (gauge) -10 to 60 °C 10° Pa·m³/s (He) (O-ring leakage is not included by the second	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) ded) correction execution, alarm reset, etc.) sed ON, error ON, etc.) J selectable by setting ircuits. ororesin, EPDM, SUS630 equivalent				
Aodel No (alve type) Standard f Gas type Control Pressure Operating conditions External I analog I/O Digital I/O Commun Power Aain mate Aounting	b. e ull-scale flow rate (air, nitrogen) *1 *2 Control range Response *3 Accuracy (under reference conditions) (Q = flow rate) *4 Standard differential pressure Operating differential pressure Operating differential pressure Pressure resistance Anbient operating temperature eakage Input types Output types Digital inputs Digital outputs ications *6 Rating Isolation rial of gas-contacting parts *7	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % FS. (1≦Q<30%)	F solenoid valve, normally closed when de-energy poxygen, argon, carbon dioxide, acetylene *10, 1 to 100 % F.S. 0.7 s for S.P. ± 2 % F.S. (typ.) %) ± inlet pressure: 200 kPa [gauge], outlet pressure 0.5 MPa (gauge) 1 MPa (gauge) -10 to 60 °C 10° Pa·m³/s (He) (O-ring leakage is not inclue DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable) DC 0 to 5 V, 1 to 5 V, 4 to 20 mA (selectable) ion, operation mode selection, flow rate zero selection, SP ramp control gradient selection, utput, control state ON, full open ON, full clos 5 comm. (3-wire system, CPL or ModbusRTU 24 V DC, current consumption 400 mA max. wer circuit is isolated from the input/output c DM SUS316, Flu	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) ded) correction execution, alarm reset, etc.) sed ON, error ON, etc.) J selectable by setting ircuits. ororesin, EPDM, SUS630 equivalent				

Model No).		F4Q0050	F4Q0	200	F4Q0500 (Available soon)
/alve type	9		Proportional	solenoid valve, normall	v closed when de-ene	rgized (N.C.)
	ull-scale flow rate (air, nitrogen)	*1	50 L/min	200 L	-	500 L/min
as type		*2	Air, nitrogen, oxygen, argon, carbon			
uo ijpo	Control range	-		1 to 100		,, propario (100 73), batario (100 73)
		*3				
Control	Response	3		0.7 s for S.P. ±		
	Accuracy (under reference conditions) (Q = flow rate)	*4	±1.5 % S.P. (30 ≦ Q ≦ 100 %) ±0.45 % F.S. (1 ≦ Q < 30 %)	±1 % S.P. (30 ± ±0.3 % F.S. (1		± 1.5 % S.P. (20 \leq Q \leq 100 %) ± 0.3 % F.S. (1 \leq Q < 20 %)
	Standard differential pressure		50 kPa (inlet pressure: 50 kPa [gauge], outlet pressure: 0 kPa [gauge])	200 kPa (inlet	pressure: 200 kPa [ga	uge], outlet pressure: 0 kPa [gauge])
ressure	Operating differential pressure range	*5	10 to 100 kPa	100 to 3	00 kPa	150 to 300 kPa
	Allowable inlet pressure			0.5 MPa	(gauge)	1
	Pressure resistance			1 MPa (gauge)	
	Ambient operating temperature			-10 to	60 °C	
xternal l	eakane		1 x	10 ⁻⁸ Pa•m ³ /s (He) (O-rin	n leakage is not includ	ded)
	Input types			DC 0 to 5 V, 1 to 5 V, 4	<u> </u>	
nalog I/O					. ,	
	Output types			DC 0 to 5 V, 1 to 5 V, 4	. ,	
	Digital inputs			ion, operation mode sel		
igital I/O	Disited endersely	_	• •	selection, SP ramp cont		
	Digital outputs	_		utput, control state ON,		
ommuni	ications	*6	(1) USB 2.0, (2) RS-48	35 comm. (3-wire systen	n, CPL or ModbusRTU	J selectable by setting
ower	Rating			24 V DC, current consu	umption 400 mA max.	
01101	Isolation		The po	ower circuit is isolated fr	rom the input/output c	ircuits.
lain mate	rial of gas-contacting parts	*7	SUS316, Fluorore	esin, Fluororubber		SUS316, Fluororesin, Fluororubber, SUS630 equiva
lounting	orientation	*8	Horizon	tal (but top panel must r	not face downward) or	r vertical
	tion) rating				-	
o (protect	lionij raling	*9		IP4	10	
tandard:	s compliance mm models with EP		rubber gasket (for details, refer to CP-SP-	EN61326-1、E	N61326-2-3	
150 1odel No	s compliance mm models with EP		F4Q0200	EN61326-1、E 1461E)	N61326-2-3 F	4Q0500 (Available soon)
150 1odel No //alve type	s compliance mm models with EP). 9	DM	F4Q0200 Proportional	EN61326-1、E	N61326-2-3 F	ergized (N.C.)
150 160 1	s compliance mm models with EP	PDM *1	F4Q0200 Proportional 200 L/min	EN61326-1、E	N61326-2-3 F y closed when de-ene	rgized (N.C.) 500 L/min
150 160 1	s compliance mm models with EP 9. 9 ull-scale flow rate (air, nitrogen)	DM	F4Q0200 Proportional 200 L/min	EN61326-1, E	N61326-2-3 F y closed when de-ene dioxide, acetylene *10,	rgized (N.C.) 500 L/min
150 100 1	s compliance mm models with EP b. e ull-scale flow rate (air, nitrogen) Control range	PDM *1 *2	F4Q0200 Proportional 200 L/min	EN61326-1, E	F y closed when de-ene dioxide, acetylene *10, % F.S.	rgized (N.C.) 500 L/min
150 Model No 'alve type itandard fi Gas type	s compliance mm models with EP e ull-scale flow rate (air, nitrogen) Control range Response	PDM *1	F4Q0200 Proportional 200 L/min Air, nitrogen, o	EN61326-1、E 1461E) solenoid valve, normall oxygen, argon, carbon o 1 to 100 0.7 s for S.P. ±	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.)	rgized (N.C.) 500 L/min ammonia *10
 150 1odel No alve type tandard f as type 	s compliance mm models with EP e ull-scale flow rate (air, nitrogen) Control range Response Accuracy (under reference conditions) (Q = flow rate)	PDM *1 *2	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1、E	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.)	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%)
150 160 1	s compliance mm models with EP b. e ull-scale flow rate (air, nitrogen) Control range Response Accuracy (under reference	PDM *1 *2 *3	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1, E 1461E) solenoid valve, normali pxygen, argon, carbon o 1 to 100 0.7 s for S.P. ± %)	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.)	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%)
150 150 1odel Nc alve type tandard f ias type control	s compliance mm models with EP e ull-scale flow rate (air, nitrogen) Control range Response Accuracy (under reference conditions) (Q = flow rate)	PDM *1 *2 *3 *4	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1、E	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.)	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%)
150 1odel Nc alve type tandard f ias type control	s compliance mm models with EP e ull-scale flow rate (air, nitrogen) Control range Response Accuracy (under reference conditions) (Q = flow rate) Standard differential pressure	PDM *1 *2 *3 *4	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%) 200 kPa (EN61326-1、E	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) ± ± [gauge], outlet pressu	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge])
150 150 Model Nc alve type tandard f as type Control	s compliance mm models with EP a ull-scale flow rate (air, nitrogen) Control range Response Accuracy (under reference conditions) (Q = flow rate) Standard differential pressure Operating differential pressure range	PDM *1 *2 *3 *4	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%) 200 kPa (EN61326-1、E	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) ± [gauge], outlet pressur (gauge)	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge])
150 Model No calve type standard f Gas type Control Pressure Operating	s compliance mm models with EP	PDM *1 *2 *3 *4	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%) 200 kPa (EN61326-1、E 1461E) solenoid valve, normall pxygen, argon, carbon o 1 to 100 0.7 s for S.P. ± : %)) inlet pressure: 200 kPa 0.5 MPa	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) ± [gauge], outlet pressur (gauge) gauge)	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge])
tandard: 150 160	s compliance mm models with EP	PDM *1 *2 *3 *4	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%) 200 kPa (100 to 300 kPa	EN61326-1、E	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) ± [gauge], outlet pressur (gauge) gauge) 60 °C	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa
tandarda 150 160	s compliance mm models with EP	PDM *1 *2 *3 *4	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%) 200 kPa (100 to 300 kPa	EN61326-1、E 1461E) solenoid valve, normall pxygen, argon, carbon of 1 to 100 0.7 s for S.P. ± %)) inlet pressure: 200 kPa 0.5 MPa 1 MPa (p	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) ± [gauge], outlet pressur (gauge) gauge) 60 °C g leakage is not includ	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa
150 100del Not alve type tandard f as type control ressure perating onditions xternal l	s compliance mm models with EP	PDM *1 *2 *3 *4	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%) 200 kPa (100 to 300 kPa	EN61326-1、E .1461E)	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) ± ± [gauge], outlet pressur (gauge) gauge) 60 °C ig leakage is not incluc to 20 mA (selectable)	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa
150 150 160 1	s compliance mm models with EP	PDM *1 *2 *3 *4	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1, E 1461E) solenoid valve, normall bxygen, argon, carbon c 1 to 100 0.7 s for S.P. ± : %)) inlet pressure: 200 kPa 0.5 MPa 1 MPa (-10 to 1 10* Pa·m³/s (He) (O-rin DC 0 to 5 V, 1 to 5 V, 4 DC 0 to 5 V, 1 to 5 V, 4 ion, operation mode sel	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) ± (gauge), outlet pressur (gauge) gauge) 60 °C to 20 mA (selectable) to 20 mA (selectable) lection, flow rate zero of	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) correction execution,
tandard: tandard: 150 lodel Nc alve type tandard f as type control ressure perating onditions xternal I nalog I/O	s compliance mm models with EP	PDM *1 *2 *3 *4	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1、E 1461E) solenoid valve, normall bxygen, argon, carbon c 1 to 100 0.7 s for S.P. ± : %)) inlet pressure: 200 kPa 0.5 MPa 1 MPa (-10 to 1 10 ⁻⁸ Pa·m³/s (He) (O-rin DC 0 to 5 V, 1 to 5 V, 4 DC 0 to 5 V, 1 to 5 V, 4 ion, operation mode sel selection, SP ramp cont	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) ± [gauge], outlet pressur (gauge) gauge) 60 °C g leakage is not includ to 20 mA (selectable) to 20 mA (selectable) lection, flow rate zero or rol gradient selection,	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) correction execution, alarm reset, etc.)
tandard: 150 160	s compliance mm models with EP	PDM +1 +2 +3 +4 +5	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1、E 1461E) solenoid valve, normall poxygen, argon, carbon c 1 to 100 0.7 s for S.P. ± %)) inlet pressure: 200 kPa 0.5 MPa 1 MPa (g -10 to 1 10 ⁻⁸ Pa·m³/s (He) (O-rin DC 0 to 5 V, 1 to 5 V, 4 DC 0 to 5 V, 1 to 5 V, 4 ion, operation mode sel selection, SP ramp cont utput, control state ON,	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) ± ± [gauge], outlet pressur (gauge) gauge) 60 °C g leakage is not includ to 20 mA (selectable) to 20 mA (selectable) lection, flow rate zero of rol gradient selection, full open ON, full clos	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) correction execution, alarm reset, etc.) sed ON, error ON, etc.)
150 150 Aodel Nc Aodel Nc Aodel Nc Aodel Nc Calve type tandard f Bas type Control Pressure Deperating onditions External I malog I/O Digital I/O	s compliance mm models with EP	PDM *1 *2 *3 *4	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1、E 1461E) solenoid valve, normall poxygen, argon, carbon co 1 to 100 0.7 s for S.P. ± : %)) inlet pressure: 200 kPa 0.5 MPa 1 MPa (g -10 to to 10° Pa·m³/s (He) (O-rin DC 0 to 5 V, 1 to 5 V, 4 DC 0 to 5 V, 1 to 5 V, 4 DC 0 to 5 V, 1 to 5 V, 4 ion, operation mode sel selection, SP ramp cont utput, control state ON, 55 comm. (3-wire system)	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) ± [gauge], outlet pressur (gauge) gauge) 60 °C ug leakage is not includ to 20 mA (selectable) to 20 mA (selectable) lection, flow rate zero of rol gradient selection, full open ON, full closs n, CPL or ModbusRTU	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) correction execution, alarm reset, etc.) sed ON, error ON, etc.)
150 150 Model Nc dave type tandard f aas type Control Pressure Dperating	s compliance mm models with EP mm models with EP mm models with EP minimum content of the second sec	PDM +1 +2 +3 +4 +5	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1、E 1461E) solenoid valve, normall poxygen, argon, carbon of 1 to 100 0.7 s for S.P. ± : %)) inlet pressure: 200 kPa 0.5 MPa 1 MPa (-10 to 0 10° Pa·m³/s (He) (O-rin DC 0 to 5 V, 1 to 5 V, 4 DC 0 to 5 V, 1 to 5 V, 4 DC 0 to 5 V, 1 to 5 V, 4 DC 0 to 5 V, 1 to 5 V, 4 belection, SP ramp cont utput, control state ON, 55 comm. (3-wire system 24 V DC, current consu	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) figauge], outlet pressur (gauge) gauge) 60 °C to 20 mA (selectable) to 20 mA (selectable) to 20 mA (selectable) lection, flow rate zero of rol gradient selection, , full open ON, full closs n, CPL or ModbusRTU Imption 400 mA max.	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) correction execution, alarm reset, etc.) sed ON, error ON, etc.) J selectable by setting
tandard: 150 Aodel No Calve type tandard f aas type Control Operating onditions External I unalog I/O Communi Communi Cover	s compliance mm models with EP mm models with EP mm models with EP minimum control range Control range Response Accuracy (under reference conditions) (Q = flow rate) Standard differential pressure operating differential pressure Pressure resistance Allowable inlet pressure Pressure resistance Ambient operating temperature eakage Input types Output types Digital inputs Digital outputs ications Rating Isolation	PDM *11 *2 *3 *4 *5 *5	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1、E 1461E) solenoid valve, normall bxygen, argon, carbon c 1 to 100 0.7 s for S.P. ± %)) inlet pressure: 200 kPa 0.5 MPa 1 MPa (-10 to 1 10 ^{-s} Pa·m ³ /s (He) (O-rin DC 0 to 5 V, 1 to 5 V, 4 DC 0 to 5 V, 1 to 5 V, 4 DC 0 to 5 V, 1 to 5 V, 4 DC 0 to 5 V, 1 to 5 V, 4 bselection, SP ramp cont utput, control state ON, 35 comm. (3-wire system 24 V DC, current consu wer circuit is isolated fr	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) (gauge), outlet pressur (gauge) gauge) 60 °C to 20 mA (selectable) to 20 mA	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) ded) correction execution, alarm reset, etc.) sed ON, error ON, etc.) J selectable by setting ircuits.
tandard: 150 Aodel No Aodel No Aodel No Aodel No Calve type tandard f aas type Control Pressure Operating onditions External I unalog I/O Communi Power Aain mate	s compliance mm models with EP mm models with EP mm models with EP minimum content of the second sec	PDM *11 *2 *3 *4 *5 *5 *5 *6 *6	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1.E	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) (gauge), outlet pressur (gauge) gauge) 60 °C Ig leakage is not includ to 20 mA (selectable) to 20	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) ded) correction execution, alarm reset, etc.) sed ON, error ON, etc.) J selectable by setting ircuits. ororesin, EPDM, SUS630 equivalent
tandard: tandard: 150 fodel Nc alve type tandard f ias type control ressure perating onditions xternal l nalog I/O igital I/O communi ower lain mate	s compliance mm models with EP mm models with EP mm models with EP minimum control range Control range Response Accuracy (under reference conditions) (Q = flow rate) Standard differential pressure operating differential pressure Pressure resistance Allowable inlet pressure Pressure resistance Ambient operating temperature eakage Input types Output types Digital inputs Digital outputs ications Rating Isolation	PDM *1 *2 *3 *4 *5 *5 *6 *6 *6 *7 *8	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1.E	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) (gauge), outlet pressur (gauge) gauge) 60 °C to 20 mA (selectable) to 20 mA	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) ded) correction execution, alarm reset, etc.) sed ON, error ON, etc.) J selectable by setting ircuits. ororesin, EPDM, SUS630 equivalent
tandard: 150 Aodel No Add Aodel No Add	s compliance mm models with EP mm models with EP mm models with EP minimum content of the second sec	PDM *11 *2 *3 *4 *5 *5 *5 *6 *6	F4Q0200 Proportional 200 L/min Air, nitrogen, o ±1 % S.P. (30≦Q≦1009 ±0.3 % F.S. (1≦Q<30%)	EN61326-1.E	F y closed when de-ene dioxide, acetylene *10, % F.S. 2 % F.S. (typ.) (gauge), outlet pressur (gauge) gauge) 60 °C to 20 mA (selectable) to 20 mA	rgized (N.C.) 500 L/min ammonia *10 1.5 % S.P. (20≦Q≦100%) 0.3 % F.S. (1≦Q<20%) re: 0 kPa [gauge]) 150 to 300 kPa ded) ded) correction execution, alarm reset, etc.) sed ON, error ON, etc.) J selectable by setting ircuits. ororesin, EPDM, SUS630 equivalent

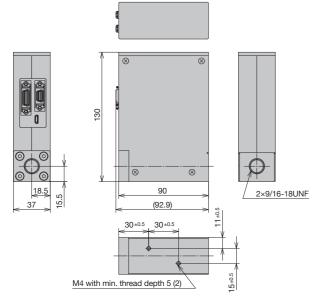
*1. "mL/min" and "L/min" indicate the volumetric flow rate per minute converted to 0 °C and 101.325 kPa (one atmosphere). The controllable flow rate range varies depending on the gas type. Refer to "Control flow rate ranges by gas type" on page 05. *2. Gas must be dry, without corrosive components like chlorine, sulfur, and acid. It also must be clean, without dust or oil mist. *3. Value at the standard differential pressure. *4. Instrument error compared with our equipment under reference conditions. Reference conditions: • Fluid: air. • Inlet pressure: standard differential pressure ± 15 kPa (gauge). • Outlet pressure: atmospheric pressure. • Ambient temperature: 23 ± 2 °C. • Gas temperature: same as ambient temperature: mode: control.
• Vibration/pulsation: none.
• Warm-up time: at least 2 hours at ambient temperature, plus at least 30 minutes after power-on.
• installation orientation: horizontal with display facing upward. • Upstream straight pipe length: any (model F4Q050), 50 mm (model F4Q0200), 70 mm (model F4Q0500). *5. The controller is operable even when the operating differential pressure is lower than the low limit, but the controllable flow rate range is smaller in that case. *6. USB 2.0 is used to connect Azbil's PC loader software. Micro USB Type-B (length 2 m max.) is supported. *7. The gas-contacting parts have been degreased. *8. When installed vertically, the measured values have an error which can be corrected by configuring the controller. Refer to the Digital Mass Flow Controller Model F4Q Detailed User's Manual (CP-SP-1461E) and the Digital Mass Flow Controller Model F4Q User's Manual for RS-485 Communication Functions (CP-SP-1458E). *9. Main unit: only when the connector is connected. The location where the valve cable enters the unit is not included. Separate display unit: only the front of the display. *10. Cannot be selected in "Gas type selection." To use this gas, set a conversion factor in "User-set gas conversion factor."

• 90 mm models with fluororubber gasket or EPDM rubber gasket

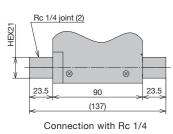
With integrated display

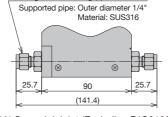


With separate display



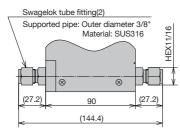




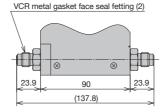


Swagelok tube fitting (2)

1/4 Swagelok joint (Excluding F4Q0100)



3/8 Swagelok joint (F4Q0100)



33

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Mounting panel recommended

89±0.2

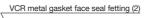
* Panel thickness: 6 mm max.

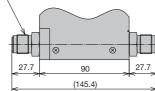
cutout dimensions

93

0.9

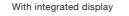
1/4 VCR joint (Excluding F4Q0100)

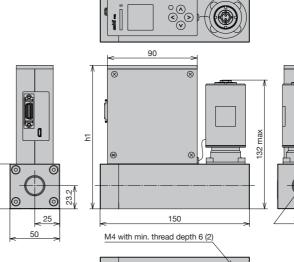


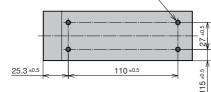


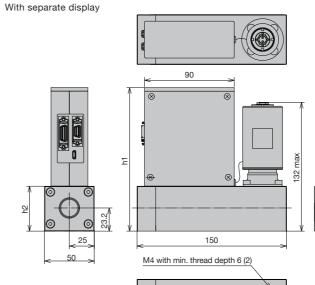
1/2 VCR joint (F4Q0100)

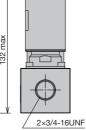
• 150 mm models with fluororubber gasket or EPDM rubber gasket

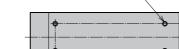






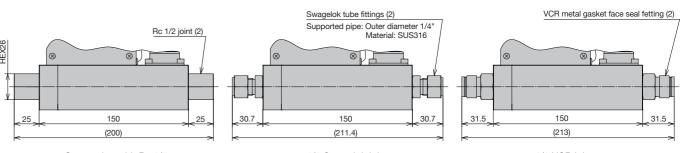












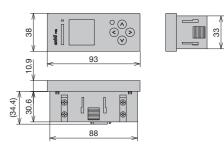
Connection with Rc 1/2

1/2 Swagelok joint

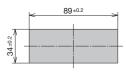


The " h " dimensions for the left diagrams

h2
112
45
46.1



Mounting panel recommended cutout dimensions



* Panel thickness: 6 mm max.

The " h " dimensions for the left diagrams

Model No.	h1	h2
F4Q0050J, K / F4Q0200J, K	143.9	45
F4Q0500J, K	145	46.1

1/2 VCR joint

Tolerance unless otherwise specified: ±1