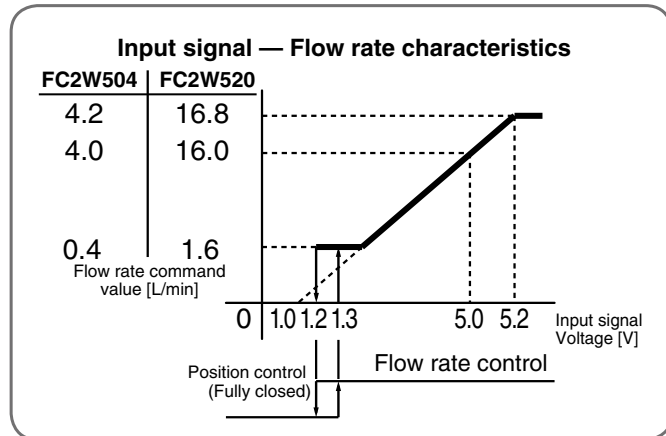
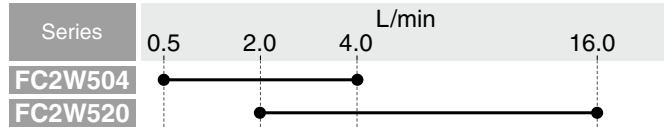


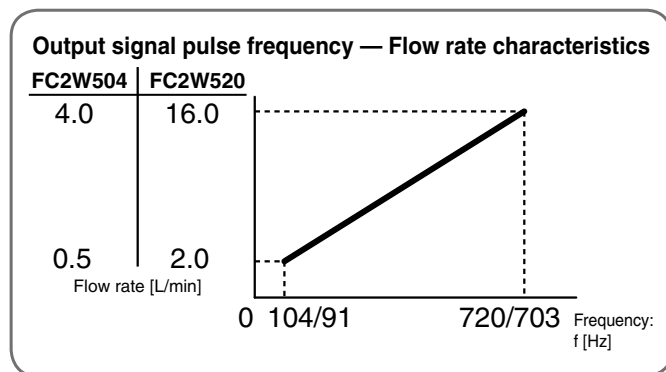
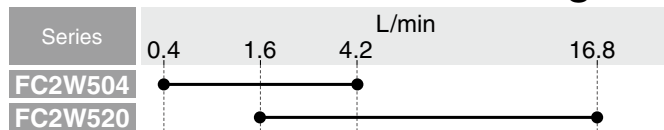
# Flow Controller for Water

Automatically adjusts the flow rate.

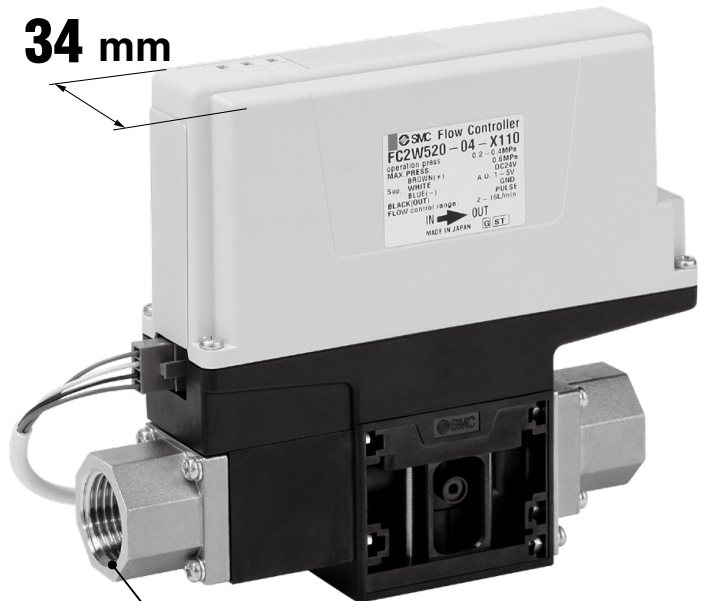
## Flow rate control range



## Flow rate measurement range



34 mm



Port Size

Series	Port size	
	3/8	1/2
FC2W504	●	—
FC2W520	—	●

## Flow rate control accuracy

$\pm 5\%$  F.S.

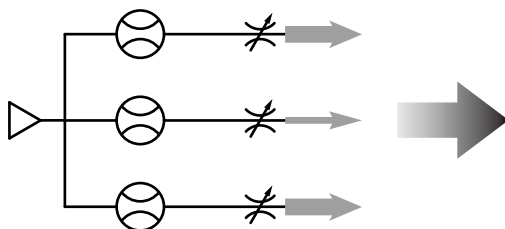
## Response time

10 s or less

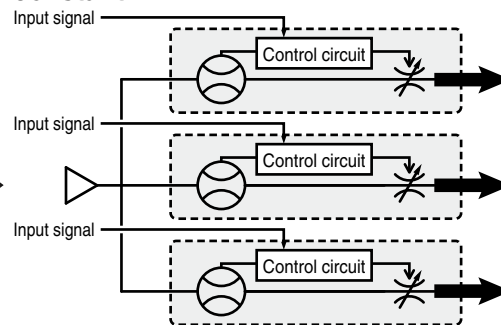
## Grease-free

### Applications

When used in multiple lines, the flow rate becomes unstable, making adjustment difficult.



The flow rate of each line can be adjusted to be constant.



A single unit of the FC2W cannot provide complete shutoff. To stop the flow in an emergency, a 2 port valve is required. Refer to page 1 for details.

**FC2W-X110**



# FC2W-X110

## How to Order

### Flow rate control range

0.5 to 4.0 L/min

**FC2W504-03-3-X110**

2.0 to 16.0 L/min

**FC2W520-04-3-X110**

Piping port size	
Symbol	Port size
03	3/8

Piping port size	
Symbol	Port size
04	1/2

Lead wire	
Symbol	Lead wire with connector (3 m)
3	Lead wire with connector (3 m)

## Specifications

Model	FC2W504-03-3-X110	FC2W520-04-3-X110
Applicable fluid	Water	
Flow rate detection method	Karman vortex	
Flow rate control range	0.5 to 4.0 L/min	2.0 to 16.0 L/min
Flow rate measurement range	0.4 to 4.2 L/min	1.6 to 16.8 L/min
Operating pressure range	0.2 to 0.4 MPa (Fluid temperature: 0 to 50°C)	
Withstand pressure	0.6 MPa	
Operating temperature range/Fluid temperature range	0 to 50°C (No condensation)	
Control accuracy	±5%F.S.	
Temperature characteristics	±5%F.S. (0 to 50°C, 25°C reference)	
Leakage when fully closed *1	0.4 L/min or less	1 L/min or less
Fully close function	Shutoff function not provided	
Response time *2	10 s or less	
Input signal *3	Analog voltage input: 1 to 5 VDC Input impedance: 1 MΩ	
Output signal *3	Flow rate pulse output	
LED indicator	When the power is ON (PWR: Green is ON) When an error is detected (ERR: Red is ON or flashing.) *4	
Power supply voltage	24 VDC±10%	
Current consumption	0.5 A	
Main materials of parts in contact with fluid	PPS, PP, POM, FKM, Stainless steel 303, Stainless steel 304, SCS13 Non-grease specifications	
Piping port size	03: Rc3/8	04: Rc1/2
Weight	515 g	530 g

\*1 Use an external shutoff valve to stop the flow in an emergency.

### Recommended 2 port solenoid valves

Series	Recommended 2 port solenoid valves	Note
FC2W504	VXZ232D□	N.C./Stainless steel/ Port size Rc3/8
FC2W520	VXZ242G□	N.C./Stainless steel/ Port size Rc1/2

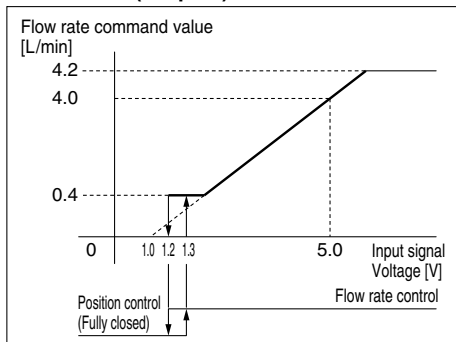
\*2 Time taken until the flow rate reaches approximately 90% of the set value relative to the flow rate command value (input signal).

\*3 Refer to Graphs 1 and 2 for the relationship between the flow rate and the I/O signals.

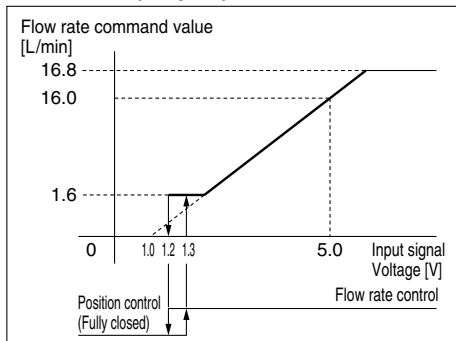
\*4 The LED status when an error is detected is summarized in the table below.

## Input Signal — Flow Rate Characteristics

### FC2W504 (Graph 1)

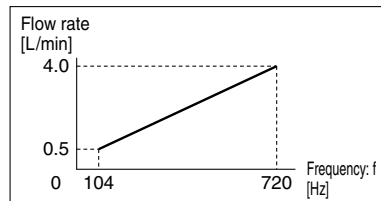


### FC2W520 (Graph 2)

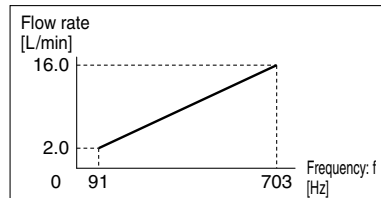


## Output Signal Pulse Frequency — Flow Rate Characteristics

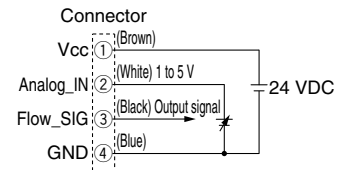
### FC2W504



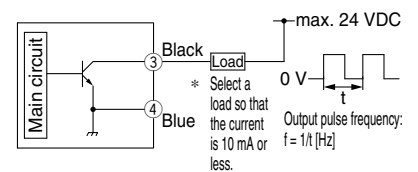
### FC2W520



## Wiring Diagrams



## Example of output signal wiring

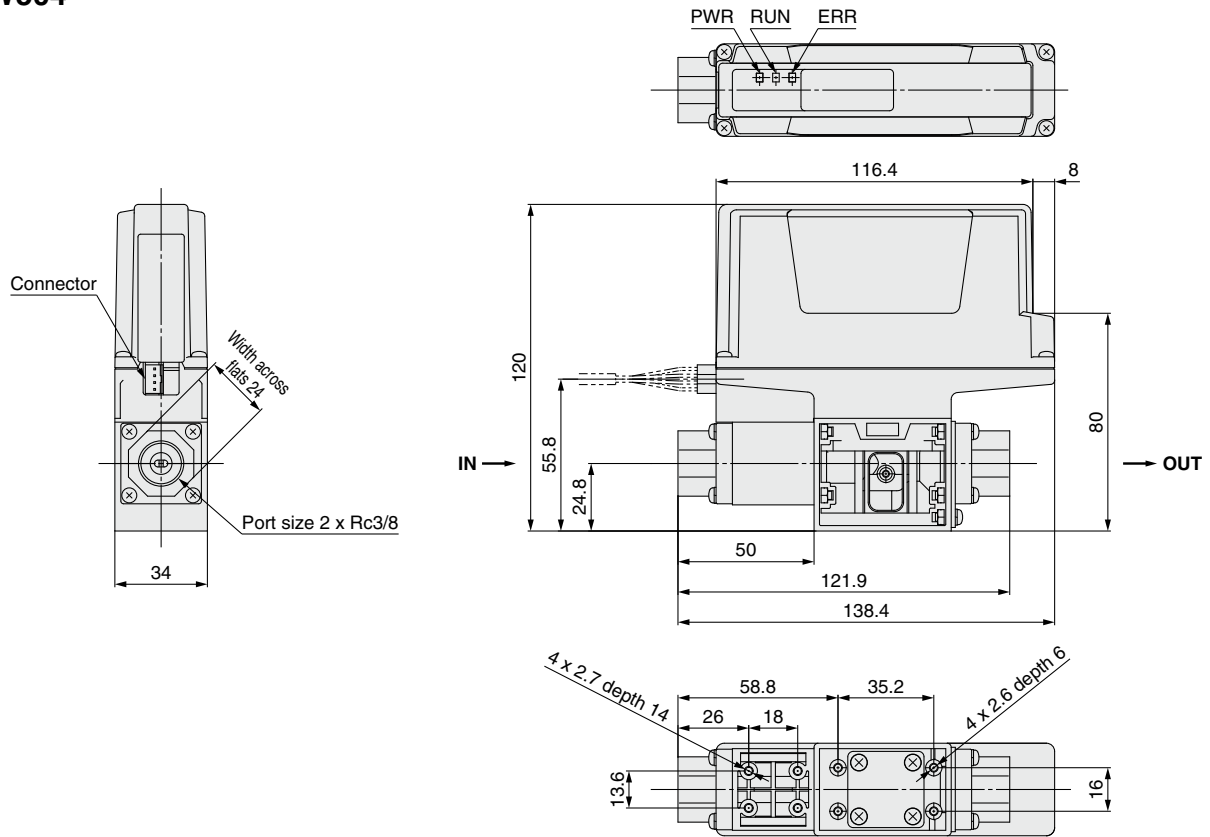


## LED Status When an Error is Detected

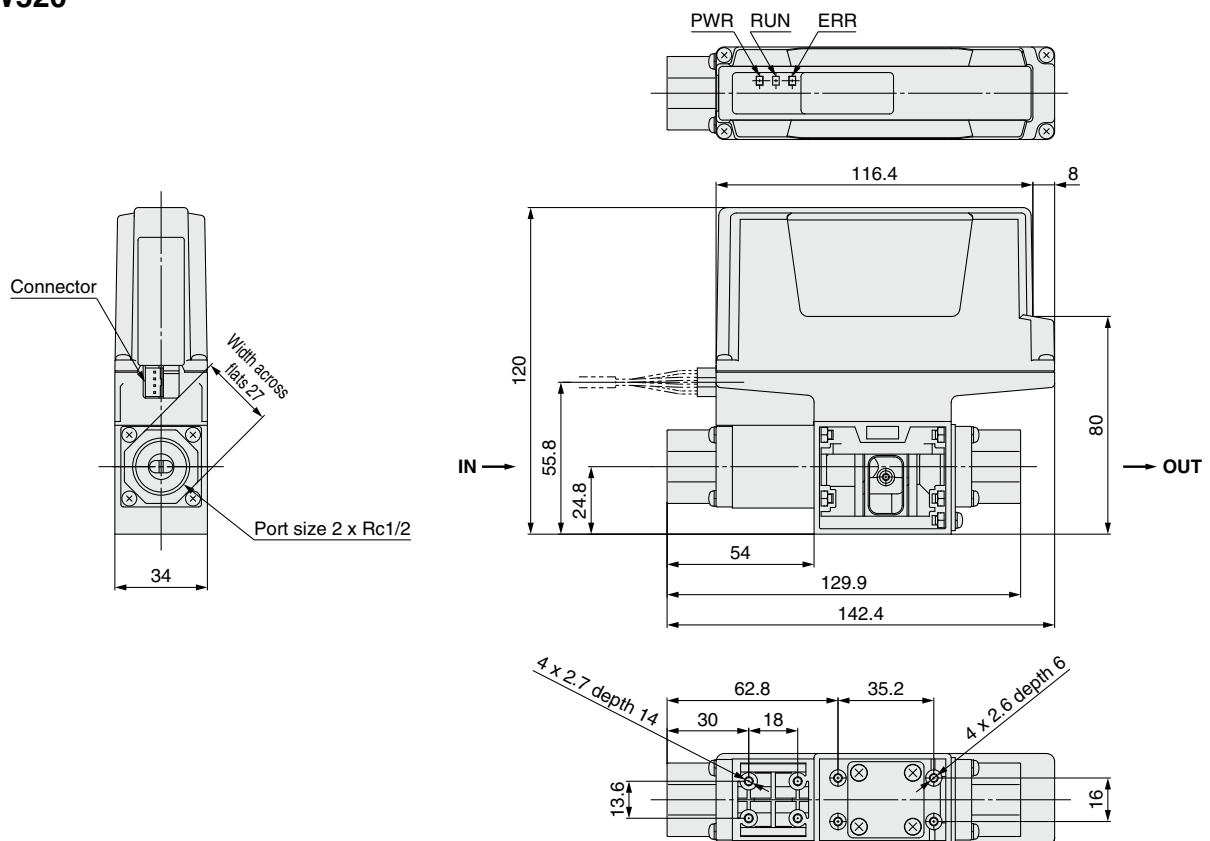
Status	LED status	Action to be taken
EEPROM error	Stays lit.	Automatically recovered when reading and writing are performed correctly.
Over current	Flashing: Flashing cycle of 500 ms 	Not automatically recovered. Turn power off and then on again.
Insufficient supply flow rate	Flashing: Two flashing cycles of 250 ms at two-second intervals 	Error automatically resets when the supply flow rate is recovered (LED goes off).

## Dimensions

### FC2W504



### FC2W520



\* The piping on the IN side must have a straight section of piping whose length is 8 times the piping diameter or more.



# FC2W-X110

## Specific Product Precautions

Be sure to read this before handling the products.

### Design

#### ⚠ Warning

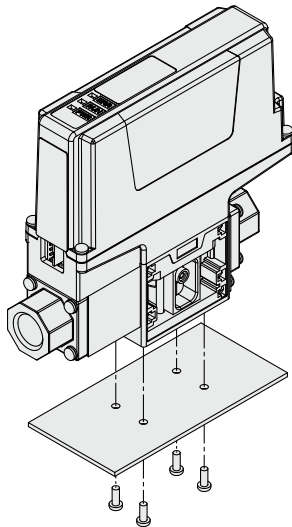
1. This product is intended to control the flow rate within the rated flow rate control range. Therefore, it cannot be used to stop the flow rate in an emergency. Be sure to use an external shutoff valve or similar device.

### Mounting

#### ⚠ Caution

1. Mount the product to the plate by inserting the four tapping screws from the rear of the plate into the screw holes on the rear of the valve part of the body.

Plate thickness: 1.5 to 2 mm, Tapping screw (4 pcs.): M3 x 8



### Handling

#### ⚠ Caution

1. If the fluid contains foreign matter, install and connect a filter to the inlet.

The adherence of foreign matter to the vortex generator or detector can cause errors in measurement accuracy.

The inclusion of fine foreign matter in the orifice may cause the valve to malfunction. It is recommended to install a filter of at least 150 mesh (100 μm).

### Operating Environment

#### ⚠ Warning

1. Keep within the specified fluid and ambient temperature range.

Fluid temperatures exceeding 50°C may cause pressure resistance to lower. Do not use any fluid whose temperature is 50°C or higher.

### Adjustment/Operation

#### ⚠ Caution

1. Be sure to check the following before starting the flow rate control (analog input signal ON):

- 1) Valves in the same piping are open.
- 2) The pump is activated.
- 3) The flow path in the product is fully filled with water.

Performing control without water running or stopping the flow during control forces the valve inside the product to operate in an opening direction, resulting in a reduction in the operating life.

2. To stop the flow rate control (analog input signal OFF), be sure to stop the control of this product, and then perform the following:

- 1) Close the valves in the same piping.
- 2) Stop the pump.

### Maintenance

#### ⚠ Warning

1. Durability

The operating durability of this product is up to one million operations under the conditions below.

[Target operation]: Full stroke opening and closing operations  
(one-way operation x 1)

[Operating pressure]: 0.3 [MPa] Constant  
(within product specification range)

[Ambient temperature]: 20 to 25 [°C]

[Fluid temperature]: 20 to 25 [°C]

[Water quality]: Clear water

⚠ **Safety Instructions** Be sure to read the "Handling Precautions for SMC Products" (M-E03-3) and "Operation Manual" before use.