

Specifications

Product Name	Flow Control Valve (with feedback capability)											
Drive System	Stepper Motor											
Model number Selection	FCV-C40						FCV-C60			FCV-C80		
Max. flow rate	300 mL/min	500 mL/min	1000 mL/min	2000 mL/min	3000 mL/min	5000 mL/min	5 L/min	10 L/min	15 L/min	20 L/min	30 L/min	
Control Range ※1	15 – 300 mL/min	25 – 500 mL/min	50 – 1000 mL/min	100 – 2000 mL/min	150 – 3000 mL/min	500 – 5000 mL/min	0.25 – 5.00 L/min	0.50 – 10.00 L/min	0.75 – 15.00 L/min	1.00 – 20.00 L/min	1.50 – 30.00 L/min	
Control Accuracy ※2	±1% of RD ※ 10% or lower of Max. flow rate: ±0.1% of F.S.											
Repeatability ※2	±1% of RD ※ 10% or lower of Max. flow rate: ±0.1% of F.S.											
Stability ※3	±2% of RD ※ 10% or lower of Max. flow rate: ±0.2% of F.S.											
Connection Size	TUBE 1/4"	TUBE 1/4" or TUBE 3/8"			TUBE 3/8"		TUBE 1/2"			TUBE 3/4"		
Control Range ※4	φ3	φ3			φ5		φ10			φ20		
Pressure limit MPa(G)	0.05 – 0.3	0.10 – 0.3			0.15 – 0.3		0.05 – 0.3	0.10 – 0.3	0.15 – 0.3	0.10 – 0.3		
Required differential pressure (MPa(G))	0.05	0.1			0.15		0.05	0.1	0.15	0.1		
0% → 100%	Approx. 0.3s						Approx. 1s					
Time elapsed until flow reaches selected flow rate ※5	Approx. 1s						Approx. 2s					
Flow Sensor	No flow sensor installed ※To use this flow control capability, a flow sensor with analog in/out is required.											
Analog Type	4-20 mA (Standard) or 1-5 V											
Analog input vs flow rate	4 mA (1 V): 0 mL/min 20 mA (5 V): Max. flow rate specified in above Control Range											
Fluid Name	WATER / Chemicals (Preliminary discussion required)											
Withstand Pressure	0.5MPa(G) / 20°C											
Fluid Temperature	10 – 90°C ※No condensation (Max. Pressure value varies depending on your fluid temperature)											
Operating Temperature	15 – 50°C ※No condensation											
Wetted Material	PFA / PTFE											
Analog Input (Valve Position Input)	4-20 mA (Standard): Input Resistance: 20 Ω / 1-5 V Input Resistance: 1 MΩ											
Analog output	4-20 mA (Standard): Load Resistance: 300 Ω / 1-5 V Load Resistance: 1 kΩ											
Alarm Output (CNT2 Line)	Transistor NPN Open Collector (Output Applied Voltage: 35 V DC or lower / Sink Current: 100 mA or lower (Vol=1.3 V)) Disconnection Error Alarm ※this is applied to any disconnection											
Control ON / OFF (PS2 Line)	Control ON / OFF (Non-voltage Normally Open Contacts) ※Control ON is valid when contacts are closed. (Contacts are normally closed. Inoperable with Contacts open.)											
Forced Valve 100% Open (EXT1 Line)	Forced Valve 100% Open (Non-voltage Normally Open Contacts) ※Forced valve 100% open is valid when contacts are closed. (Operable with Contacts open.)											
Power Source	FCV-C40: DC24V±10%: Approx. 0.3A (When peak: Approx. 0.5A) FCV-C60: DC24V±10%: Approx. 0.4A (When peak: Approx. 0.7A) FCV-C80: DC24V±10%: Approx. 0.5A (When peak: Approx. 0.9A)											

※1: Valid with USF500 Series. If your flow sensor doesn't generate more than 20 mA (5 V), available Control Ranges will be 98% of Max. flow rate.

(e.g.) Control Range will be 15 (*) - 294 mL/min with flow sensor whose Max. flow rate is 300 mL/min

* Lower limit of Control Range varies depending on Base model

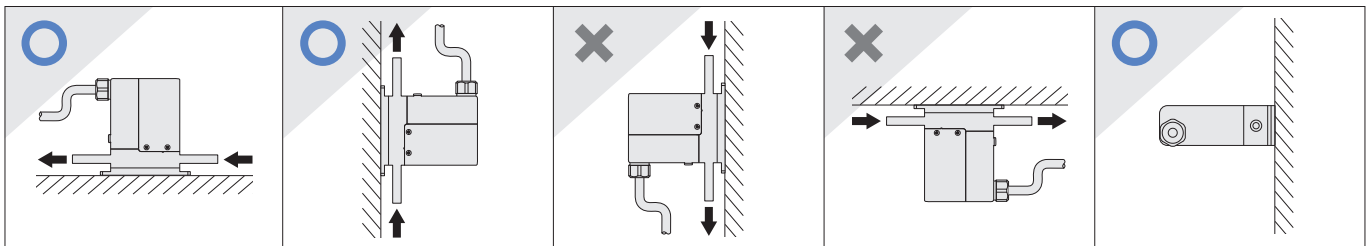
※2: Valid with USF500 Series. The abovementioned control accuracy does not consider the flow accuracy of your flow meter. For that reason, your flow meter may affect the above accuracy.

※3: Valid with USF500 Series. Stability varies in accordance with how stable your supply pressure is, etc.

※4: Orifice size suitable for water or water equivalent fluid. Orifice size and base model to optimize in accordance with fluid name

※5: Time to be affected by analog input / output from your flow sensor.

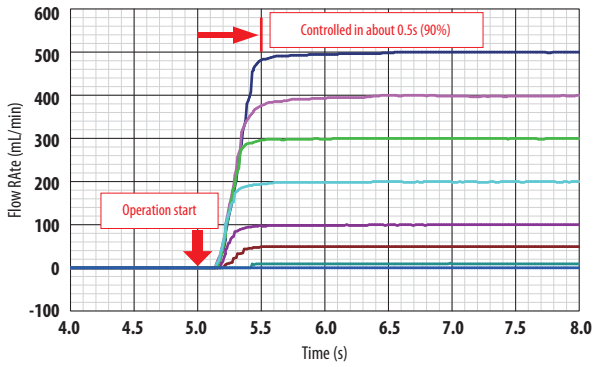
Installation attitude



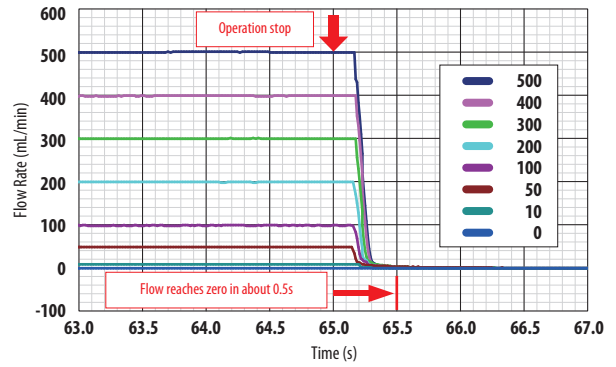
Response Time (C40)

※ Below data taken with USF500 Series

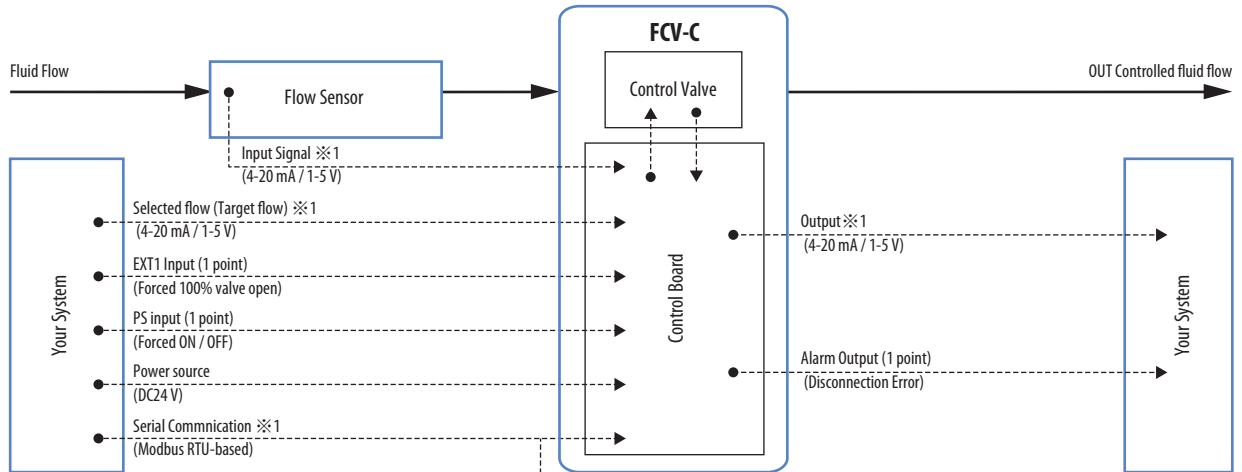
Response Time Data Inlet Pressure 0.1 MPa(G) after starting operation



Response Time Data Inlet Pressure 0.1 MPa(G) after stopping operation operation



System Configuration



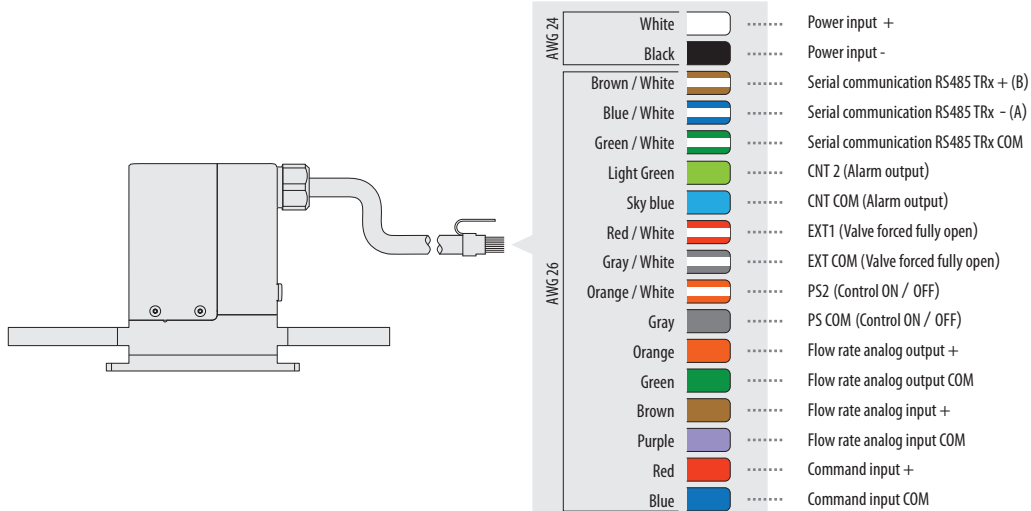
Maintenance

FCV-C Term

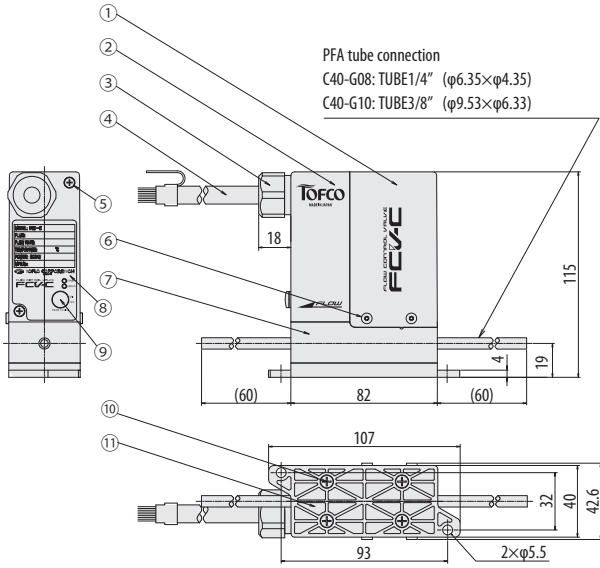
- Parameter Setup
- Monitoring, Flow Rate, Valve Position, Inputs, etc

※1: Parameter / calibration setup is required for analog input / output or Serial communication at the factory. Please select Analog output type, Control signal type, and Analog input type from your flow meter when ordering.

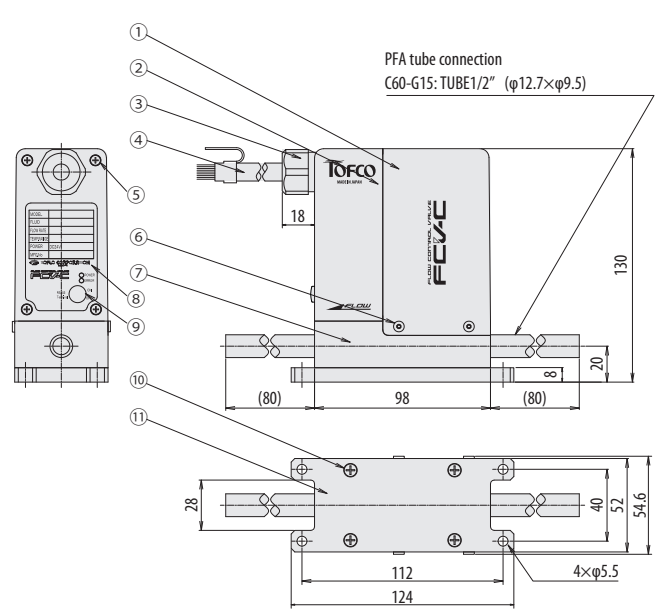
Wiring diagram



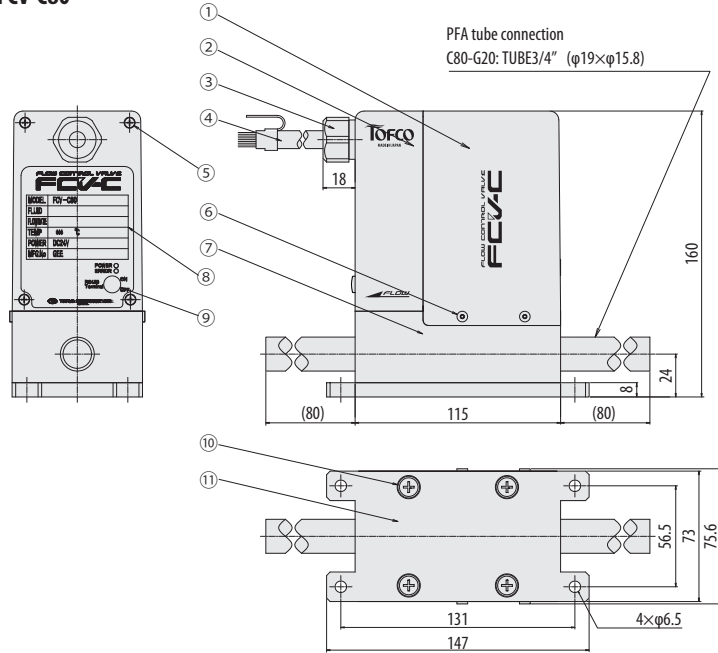
FCV-C40



FCV-C60



FCV-C80



Materials

No.	Names of parts	Material	Remarks
1	Housing	PBT	Dark gray
2	Circuit board cover	PBT	
3	Gland	PPS	
4	Handle	PVC	20-core / 3 m
5	Screws for circuit board cover	PPS	Screws to secure circuit board cover
6	Screws for housing	PPS	Screws to secure housing
7	Body	PTFE	
8	Name plate label	PET	
9	Hole cap	TPE	Hole for termination resistor switch
10	Screws for plate	PEEK	Screws to secure plate
11	Plate	PBT	



TOFCO CORPORATION

Address : 4-3-17 Minamidaira Hino-shi Tokyo Japan 191-0041

Phone : +81-(0)42-592-6111 FAX : +81-(0)42-592-6112 E-mail : sales@tofco.jp Web site : www.tofco.jp