Contact our sales office for delivery dates and prices as this is a special model.

Specialized Product P.G. Point to Group information

3-Color Display Digital Flow Switch for Water (Compression Fitting Type)

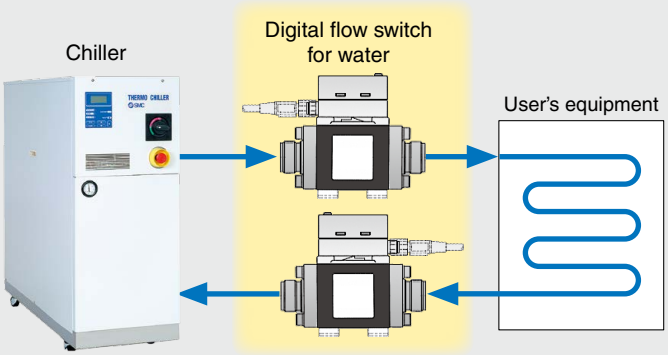
PF3W7-X365

Features

- **Allows for the use of fluorinated fluids*1 as EPDM is used as the seal material**

Fluorinert™	FC-3283, FC-40
GALDEN®	HT135, HT200

*1 There are restrictions on fluid types and temperature conditions. For details, refer to the Measurable Range (Reference values) of Fluorinert™ and GALDEN®.



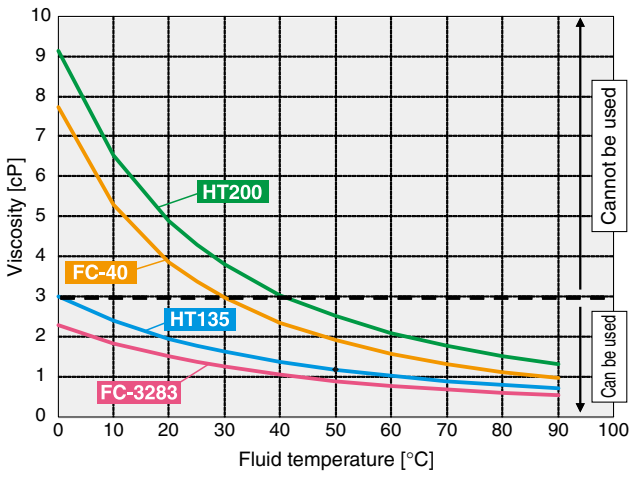
- **Wetted Parts**

Seal	Attachment
EPDM (FKM)	**Stainless steel 316 (Stainless steel 304)**

( ): Standard type

- **Double O-ring structure for needle section (Flow adjustment valve)**
- **Non-grease**

Measurable Range of Fluorinert™ and GALDEN® (Reference values)



⚠ Caution To ensure the safest possible operation of this product, please be sure to thoroughly read the **"Safety Instructions"** in our "Best Pneumatics" catalog before use.

SMC Corporation 4-14-1, SOTO-KANDA, CHIYODA-KU, TOKYO 101-0021, JAPAN **URL: http://www.smcworld.com**

SP165E-001E
P: VZ

How to Order

❸ Output specification

Symbol	OUT1	OUT2	Temperature sensor
	Flow rate	Flow rate	
A	NPN	—	None
B	PNP	—	
C	NPN	Analog 1-5 V	
D	NPN	Analog 4-20 mA	
E	PNP	Analog 1-5 V	
F	PNP	Analog 4-20 mA	
G	NPN	External input	
H	PNP	External input	

Without flow adjustment valve Without temperature sensor
PF3W7 20 – 03 – A □ – M □ □ – X365

With flow adjustment valve With temperature sensor
PF3W7 20 S – 04 – AT □ – M □ □ – X365

❶ ❷ ❸ ❹ ❺ ❻ ❼ ❽

With flow adjustment valve

❶ Rated flow range (Flow range)

Symbol	Rated flow range
04	0.5 to 4 L/min
20	2 to 16 L/min
40	5 to 40 L/min

❷ Piping port size

Symbol	Piping	Rated flow range		
		04	**20**	**40**
03	TSJ3/8 (Compression fitting)	●	●	—
04	TSJ1/2 (Compression fitting)	—	●	●

❹ Output specification/Temperature sensor

Symbol	OUT1	OUT2		Temperature sensor
	Flow rate	Flow rate	Temperature	
AT	NPN	(NPN)⇔	NPN	With temperature sensor
BT	PNP	(PNP)⇔	PNP	
CT	NPN	(Analog 1-5 V)⇔	Analog 1-5 V	
DT	NPN	(Analog 4-20 mA)⇔	Analog 4-20 mA	
ET	PNP	(Analog 1-5 V)⇔	Analog 1-5 V	
FT	PNP	(Analog 4-20 mA)⇔	Analog 4-20 mA	

∗ Flow rate output can be set to OUT2.

❺ Lead wire

Nil	With lead wire with M8 connector (3 m)
N	Without lead wire with M8 connector (3 m)

❻ Unit specification

Symbol	Instantaneous flow rate	Accumulated flow	Temperature
M	L/min	L	°C
G	gal/min	gal	°C
F	gal/min	gal	°F
J	L/min	L	°F

❼ Bracket

Nil	None
A	With bracket

❽ Calibration certificate (Only for flow rate)

Nil	None
A	With calibration certificate

Specifications

Model			PF3W704-X365	PF3W720-X365	PF3W740-X365
Applicable fluid			Water and ethylene glycol aqueous solution, GALDEN® (HT135, HT200), Fluorinert™ (FC-40, FC-3283) (Viscosity: 3 mPa·s (3 cP) or less)*1		
Detection method			Karman vortex		
Rated flow range			0.5 to 4 L/min	2 to 16 L/min	5 to 40 L/min
Display flow range			0.35 to 5.50 L/min (Flow of under 0.35 L/min is displayed as "0.0")	1.7 to 22.0 L/min (Flow of under 1.7 L/min is displayed as "0.0")	3.5 to 55.0 L/min (Flow of under 3.5 L/min is displayed as "0.0")
Set flow range			0.35 to 5.50 L/min	1.7 to 22.0 L/min	3.5 to 55.0 L/min
Smallest settable increment			0.01 L/min	0.1 L/min	0.1 L/min
Conversion of accumulated pulse (Pulse width: 50 ms)			0.05 L/pulse	0.1 L/pulse	0.5 L/pulse
Fluid temperature			0 to 90°C (with no freezing and condensation)		
Display unit			Instantaneous flow rate: L/min, Accumulated flow: L		
Accuracy			Display value: ±3% F.S. Analog output: ±3% F.S.		
Repeatability			±2% F.S.*2		
Temperature characteristics			±5% F.S. (25°C reference)		
Operating pressure range*3			0 to 1 MPa		
Proof pressure*3			1.5 MPa		
Pressure loss (without flow adjustment valve)			45 kPa or less at the maximum flow		
Accumulated flow range*4			99999999.9 L		999999999 L
			By 0.1 L	By 0.5 L	By 1 L
Switch output			NPN or PNP open collector output		
	Maximum load current		80 mA		
	Maximum applied voltage		28 VDC		
	Internal voltage drop		NPN: 1 V or less (at 80 mA load current) PNP: 1.5 V or less (at 80 mA load current)		
	Response time*2, *5		0.5 s/1 s/2 s		
	Output protection		Short circuit protection		
	Output mode	**Flow rate**	Select from Hysteresis, Window comparator, Accumulated output, or Accumulated pulse output modes.		
		Temperature	Select from Hysteresis mode or Window comparator mode.		
Analog output response time*6			0.5 s/1 s/2 s		
	Voltage output		Voltage output: 1 to 5 V Output impedance: 1 kΩ		
	Current output		Output current: 4 to 20 mA Max. load impedance: 300 Ω for 12 VDC, 600 Ω for 24 VDC		
Hysteresis			Variable		
External input			Voltage free input: 0.4 V or less (Reed or Solid state), input for 30 ms or longer		
Display method			2-screen display (Main screen: 4-digit, 7-segment, 2-color, Red/Green Sub screen: 6-digit, 11-segment, White) Display values updated 5 times per second		
Indicator light			Output 1, Output 2: Orange		
Power supply voltage			12 to 24 VDC ±10%		
Current consumption			50 mA or less		
Environment	**Enclosure**		IP65		
	Operating temperature range		0 to 50°C (with no freezing and condensation)		
	Operating humidity range		Operation, Storage: 35 to 85% R.H. (with no condensation)		
	Withstand voltage*7		1000 VAC for 1 min between external terminals and case		
	Insulation resistance		50 MΩ or more (500 VDC measured via megohmmeter) between external terminals and case		
Standards and regulations			CE marking, UL (CSA), RoHS		
Wetted parts material			PPS, EPDM, SUS316 (Stainless steel 304 when equipped with a flow adjustment valve or a temperature sensor) Non-grease		
Piping port size			TSJ3/8 (Compression fitting)	TSJ3/8, TSJ1/2 (Compression fitting)	TSJ1/2 (Compression fitting)

*1 Refer to the measurable range graph of ethylene glycol aqueous solution and the measurable range graph of Fluorinert™ and GALDEN®. (Refer to the cover page.) When using a fluid that does not corrode wetted parts other than the listed applicable fluids, conduct tests using an actual machine to determine the compatibility.

*2 When 0.5 s is selected for the response time of the switch output, the repeatability becomes ±3% F.S.

*3 The operating pressure range and proof pressure may change according to the fluid temperature. Refer to the operating pressure and proof pressure graphs in the operation manual.

*4 The value is cleared when the power supply is turned off. However, it is possible to select the memorizing function to memorize it. (Every 2 or 5 minutes) When 5-minute memorizing is selected, the lifetime of the memory element (electronic part) is 1 million times (5 minutes x 1 million times = 5 million minutes = approx. 9.5 years for 24 hour energizing). Calculate the lifetime based on your operating conditions before using the memorizing function, and do not exceed it.

*5 The response time when the set value is 90% in relation to the step input (The response time is 7 s when it is output by the temperature sensor.)

*6 The response time is when the set value reaches 90% in relation to the step input and is linked with the response of the switch output. (The response time is 7 s when it is analog output by the temperature sensor.)

*7 When the temperature sensor is used, it will be 250 VAC.

* An O-ring seal is used for sealing locations within the inner structure.

* GALDEN® is a registered trademark of Solvay Specialty Polymers Japan K.K.

* Fluorinert™ is a registered trademark of 3M.

* Nuts and ferrules are temporarily assembled when shipped.

* When the piping diameter or piping passage is restricted, the specifications may not be satisfied.

* Products with external scratch marks or dirt are judged as conforming products provided that they do not affect product performance.

Temperature Sensor Specifications

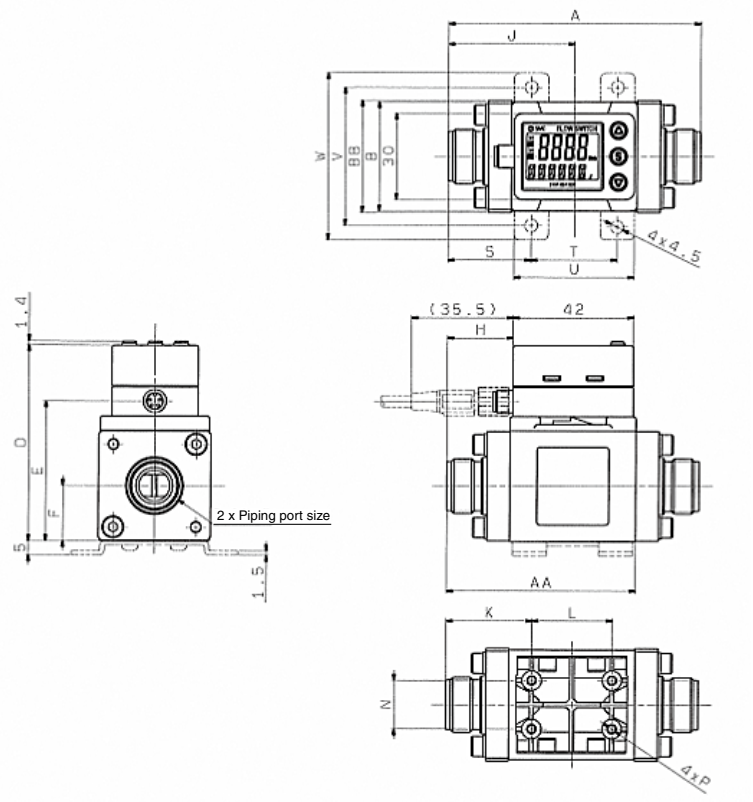
Items	Specifications
Rated temperature range	0 to 100°C*1
Setting/Display temperature range	–10 to 110°C
Setting/Minimum display unit	1°C
Display unit	°C
Display accuracy	±2°C
Analog output accuracy	±3% F.S.
Response time	7 s*2
Ambient temperature characteristics	±5% F.S.

*1 The rated temperature range refers solely to that of the temperature sensor. The fluid temperature range specification of the flow switch as a whole is 0 to 90°C.

*2 The response time refers solely to that of the temperature sensor.

Dimensions

PF3W704/720/740-X365
Integrated display



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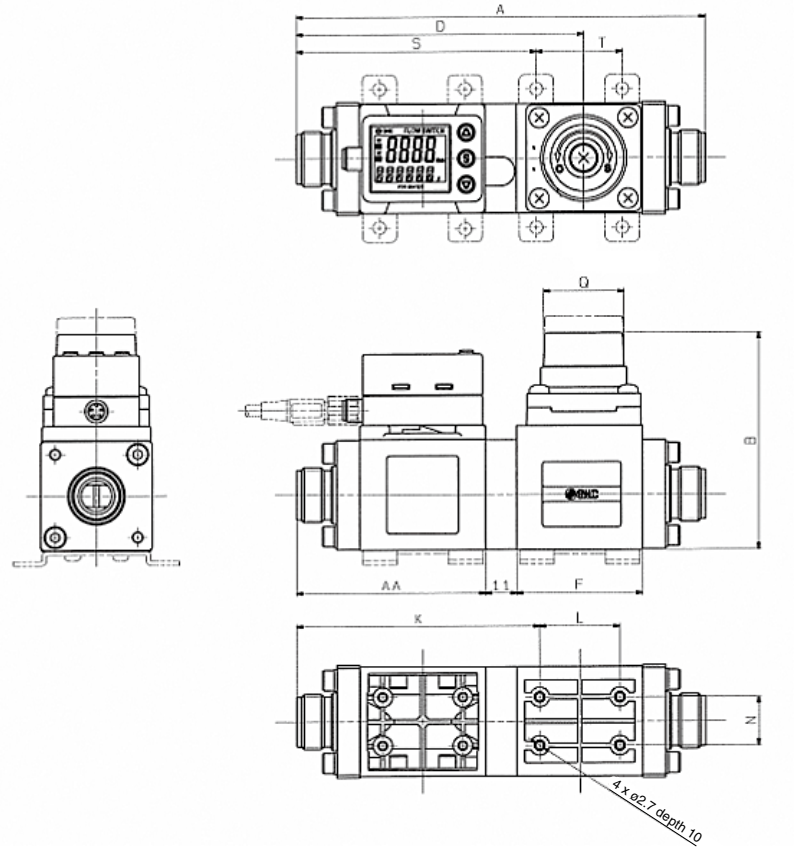
Model	Piping port size	A	AA	B	BB	D	E	F	H	J
PF3W704	TSJ3/8	80	55	30	31	60	40.6	15.2	19	40
PF3W720	TSJ3/8	80	55	30	31	60	40.6	15.2	19	40
PF3W720	TSJ1/2	74	52	30	31	60	40.6	15.2	16	37
PF3W740	TSJ1/2	88	66	38	39	68	48.6	19.2	23	44

Model	K	L	N	P	Bracket dimensions				
					S	T	U	V	W
PF3W704	31	18	13.6	ø2.7 depth 14	29	22	32	40	50
PF3W720	31	18	13.6	ø2.7 depth 12	29	22	32	40	50
PF3W720	28	18	13.6	ø2.7 depth 12	26	22	32	40	50
PF3W740	30	28	16.8	ø2.7 depth 12	29	30	42	48	58

PF3W704S/720S/740S-□-□T-X365
Integrated display: With temperature sensor/With flow adjustment valve



[mm]

Model	Piping port size	A	AA	B	D	F
PF3W704	TSJ3/8	125	55	63.6 (Max. 68.6)	86.2	34
PF3W720	TSJ3/8	125	55	63.6 (Max. 68.6)	86.2	34
PF3W720	TSJ1/2	119	52	63.6 (Max. 68.6)	83.2	34
PF3W740	TSJ1/2	143	66	75.25 (Max. 81)	100.5	44

Model	K	L	N	Q	Q Number of rotations	Bracket dimensions	
						S	T
PF3W704	74.5	18	13.6	ø19	6	72.5	22
PF3W720	74.5	18	13.6	ø19	6	72.5	22
PF3W720	71.5	18	13.6	ø19	6	69.5	22
PF3W740	85	28	16.8	ø28	7	84	30