

TFS410 Digital Flow Switch



Model		TFS410-10-01-27	TFS410-50-02-27	TFS410-11-03-27	TFS410-21-03-27	TFS410-51-04-27	
Port size Rc(PT)		1/8	1/4	3/8	3/8	1/2	
Measured fluid		Air, Nitrogen					
Flow rate measurement range		1~ 10 L/min	5~ 50 L/min	10~ 100 L/min	2~ 20 L/min	50~ 500 L/min	
Minimum set unit		0.1 L/min	0.5 L/min	1 L/min	2 L/min	5 L/min	
Accumulated pulse flow rate Exchange value(Pulse width:50ms)		0.1 L/pulse	0.5 L/pulse	1 L/pulse	2 L/pulse	5 L/pulse	
Display units	Instantaneous flow rate	L/min, CFMx10 ⁻²			L/min, CFMx10		
	Accumulated flow	L, ft ³ x 10 ⁻⁴					
Operating pressure range		-50 KPa ~ 0.5 KPa			-50 KPa ~ 0.75 KPa		
Operating fluid temperature		0 ~ 50 °C					
Power supply voltage		DC 12 ~ 24 V ± 10 %					
Current consumption		150 mA or less		160 mA or less		170 mA or less	
Accumulated flow range		0 ~ 999999L					
Detection type		Heater type					
Accuracy		± 5 % F.S					
Repeatability		± 1% F.S			± 2 % F.S		
Temperature characteristics		± 3 % F.S (15 to 35 °C, 25 °C reference) ± 5% F.S (0 to 50°C, 25 °C reference)					
Output Note1) specifications	Switch output	NPN open collector <small>Maximum load current 80 mA; Internal voltage drop: 1 V or less. Maximum applied voltage: 30 V; 2 outputs</small>					
	Accumulated pulse output	NPN open collector (same as switch output)					
Hysteresis		Hysteresis mode: Variable (can be set from 0), Window comparator mode:3-digit fixed					
Response time		Lights up when output is turned ON OUT1: Green; OUT2: Red					
Status LED's		1 sec. Or less					
Environment	Enclosure	Ip65					
	Operating temperature range	Operating: 0 to 50 °C, Stored: -25 to 85 ° C (with no freezing and condensation)					
	Withstand voltage	100 VAC for 1 minute between terminals and housing					
	Insulation resistance	50ΩI or more (500 VDC measured via megohmmeter) between					
		1000V P-P Pulse width μ s, duration 1 ns M12 connector (3m)					

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Flow rate range

Symbol	Content
10	1~ 10 L/min
50	5 ~50 L/min
11	10 ~ 100 L/min
21	20 ~ 200 L/min
51	50 ~ 500 L/min

Thread type

Symbol	Content
Nil	Rc
N	NPT

Port size

Symbol	Port size	Rated flow range				
		10	50	11	21	51
01	1/8	●	●	—	—	—
02	1/4	●	●	—	—	—
03	3/8	—	—	●	●	—
04	1/2	—	—	—	—	●

Unit specifications

Symbol	N
Nil	With switching function
M	Fixed SI unit

Lead wire

Nil	N
Lead wire with M12 connector (3m)	Without lead wire

Output specifications

Symbol	Content
27	NPN open collector 2 outputs
67	PNP open collector 2 outputs

TFS410 Digital Flow Switch



Model		TFS410-03H	TFS410-06H	TFS410-12H
Fluid		Dry, air, N2		
Detection type		Heater type		
Rated flow range ^{Note1}		150~ 3000 L/min	300 ~ 6000 L/min	600~ 12000 L/min
Minimum Setting Unit		5 L/min	10 L/min	
Display units	Instantaneous flow	L/min, CFM		
	Cumulative flow	L, m ³ , m ³ x 10 ³ , ft ³ , ft ³ x 10 ³ , ft ³ x 10		
Rated pressure range		0.1 ~ 1.5 MPa		
Proof pressure		2.25 MPa		
Pressure loss		20 kPa(maximum flow)		
Accumulated flow		0 ~ 9, 999, 999, 999L		
Accuracy		± 1.5 %F.S (0.7MPa ... 20 °C)		
Repeatability		± 1.0 %F.S (0.7MPa ... 20 °C) Analog output ±3.0%F.S		
Pressure characteristics		± 1.0 %F.S (0.1 – 1.5MPa, But based on 0.7 MPa)		
Temperature characteristics		± 2.0%F.S.(0-50 °C , Based on 25°C)		
Output	Switch Output	Maximum load current of NPN open collector: 80mA, maximum applied voltage: 30V internal voltage drop: below 1V (Load current: 80mA)		
		Maximum load current of PNP open collector: 80Ma, internal voltage array: below 1.5V (when negative current is 80 Ma)		
	Cumulative pulse output	NPN or PNP open collector flow rate per pulse: 100 L/pulse, 10.0ft ³ /pulse On time of each pulse: 50msec/pulse		
	Analog Output	Voltage output voltage 1 – 5 V, minimum load impedance: 100k (output load group impedance 1K)		
Response time		1 sec. Or less		
Hysteresis		Hysteresis mode variable (can be set from) upper and lower limit comparison mode: fixed (-3 %F.S can be set)		
Power supply		DC24V ±10%		
Consumption current		450mA or less		
	Protection	IP65		
	Workina temn	0-50 °C(no freezing and condensation)		
		Ac1000V 1 minute between external terminal and housing		
	Insulation impedance	50 MΩ (DC500v megohmmeter)external terminals and the shell		