



### ■ Operational Description

The FLS series operates on the principle of the magnetic reed switch. A magnet is mounted to a flapper inside the housing. Its normal resting position is with the flapper in a position subject to liquid flow. As pressure increases with flow rate, the flapper is forced away from its magnetically maintained at rest position. Using a magnet to maintain the resting position is unique. Switches of similar design typically apply a spring to maintain the flapper in its resting position. The spring is a mechanical component that is prone to failure. Material in the liquid may corrode or jam the spring. It may break after some point due to the corrosion. Particles from corrosion may break loose and contaminate the product.

The magnet in FLS is selected at the factory for a particular flow rate. The magnets are high quality and the flow rate switch point is very repeatable over time. Springs will lose resistance over time and the setpoint will drift.

The FLS is available in many configurations for OEM flexibility. The housing is available in Noryl plastic, brass or stainless steel. Other materials are optionally available upon request.



# FLS Series

## OEM Compact Flow Switch



flow sensing

- Very compact: approx. 0.75 in. diameter x 2.4 in. long (21 mm diameter x 66 mm), depending on model
- Low cost design
- Designed for low liquid flow
- Magnetic return mechanism—no spring to break or foul
- NPT or hose fittings
- Noryl, brass or stainless steel housing
- Factory calibrated flow setpoints is from 0.18 to 1.06 GPM (0.7 to 4.0 LPM)
- One piece construction minimizes pressure drop

■ Specifications

	FLS-060	FLS-061	FLS-065	FLS-068
<b>Body Material:</b>	PPO (Noryl)	PPO (Noryl)	PPO (Noryl)	Brass
<b>Electrical Contact Rating:</b>	(1) SPST; 10 VA	(1) SPST; 10 VA	(2) SPST; 10 VA	(1) SPST; 10 VA
<b>Flapper:</b>	PPO (Noryl) (Class HB flame retardant: UL94)	PPO (Noryl) (Class HB flame retardant: UL94)	PPO (Noryl) (Class HB flame retardant: UL94)	PPO (Noryl) (Class HB flame retardant: UL94)
<b>Connection Fitting:</b>	1/2 MNPT	Hose clamp (O.D. 19 mm or 3/4 in.)	Hose clamp (O.D. 26 mm or 1 in.)	1/2 FNPT
<b>Flow Range:</b>	0-15 L/min. (0-4 GPM)	0-30 L/min. (0-7.93 GPM)	0-40 L/min. (0-10.5 GPM)	0-15 L/min. (0-4 GPM)
<b>Setpoint (20% accuracy) (0.2 L/min. min. available)</b>	0.5-4 L/min. (0.14-1 GPM)	3-12 L/min. (0.8-3.2 GPM)	4-20 L/min. (1-5.3 GPM)	12-4 L/min. (0.32-1 GPM)
<b>Temperature—</b>				
<b>Operating:</b>	32 to 203°F (0 to 95°C)	32 to 203°F (0 to 95°C)	32 to 203°F (0 to 95°C)	32 to 203°F (0 to 95°C)
<b>Storage:</b>	-4 to 158°F (-20 to 70°C)	-4 to 158°F (-20 to 70°C)	-4 to 158°F (-20 to 70°C)	-4 to 158°F (-20 to 70°C)
<b>Pressure—Maximum:</b>	145 psi/10 bar (1 Mpa)	145 psi/10 bar (1 Mpa)	145 psi/10 bar (1 Mpa)	290 psi/20 bar (2 Mpa)
<b>Lead Wires</b>	(2) #22 AWG	(2) #22 AWG	(2) #22 AWG	(2) #22 AWG
<b>Weight:</b>	0.7 oz. (20 g)	1.0 oz. (30 g)	1.0 oz. (30 g)	19.4 oz. (550 g)

	FLS-070	FLS-075	FLS-076	FLS-077
<b>Body Material:</b>	316L SS	Brass	Brass	316L SS
<b>Electrical Contact Rating:</b>	(1) SPST; 10 VA	(1) SPST; 10 VA	(1) SPST; 10 VA	(1) SPST; 10 VA
<b>Flapper:</b>	PPO (Noryl) (Class HB flame retardant: UL94)	PPO (Noryl) (Class HB flame retardant: UL94)	PPO (Noryl) (Class HB flame retardant: UL94)	PPO (Noryl) (Class HB flame retardant: UL94)
<b>Connection Fitting:</b>	1/2 FNPT	3/4 FNPT	1 FNPT	3/4 FNPT
<b>Flow Range:</b>	0-15 L/min. (0-4 GPM)	0-30 L/min. (0-7.93 GPM)	0-40 L/min. (0-10.5 GPM)	0-30 L/min. (0-7.93 GPM)
<b>Setpoint (20% accuracy) (0.2 L/min. min. available)</b>	1.2-4 L/min. (0.32-1 GPM)	3-20 L/min. (5.3 GPM)	3-20 L/min. (0.8-5.3 GPM)	3-20 L/min. (0.8-5.3 GPM)
<b>Temperature—</b>				
<b>Operating:</b>	32 to 203°F (0 to 95°C)	32 to 203°F (0 to 95°C)	32 to 203°F (0 to 95°C)	32 to 203°F (0 to 95°C)
<b>Storage:</b>	-4 to 158°F (-20 to 70°C)	-4 to 158°F (-20 to 70°C)	-4 to 158°F (-20 to 70°C)	-4 to 158°F (-20 to 70°C)
<b>Pressure—Maximum:</b>	290 psi/20 bar (2 Mpa)	290 psi/20 bar (2 Mpa)	290 psi/20 bar (2 Mpa)	290 psi/20 bar (2 Mpa)
<b>Lead Wires</b>	(2) #22 AWG	(2) #22 AWG	(2) #22 AWG	(2) #22 AWG
<b>Weight:</b>	19.4 oz. (550 g)	19.4 oz. (550 g)	19.4 oz. (550 g)	19.4 oz. (550 g)

	FLS-078	FLS-080
<b>Body Material:</b>	316L SS	PPO (Noryl)
<b>Electrical Contact Rating:</b>	(1) SPST; 10 VA	(1) SPST; 10 VA
<b>Flapper:</b>	PPO (Noryl) (Class HB flame retardant: UL94)	PPO (Noryl) Class HB flame retardant: UL94)
<b>Connection Fitting:</b>	1 FNPT	3/4 MNPT
<b>Flow Range:</b>	0-40 L/min. (0-10.5 GPM)	0-40 L/min. (0-10.5 GPM)
<b>Setpoint (20% accuracy) (0.2 L/min. min. available)</b>	3-20 L/min. (0.8-5.3 GPM)	1.3-20 L/min. (0.34-5.3 GPM)
<b>Temperature—</b>		
<b>Operating:</b>	32 to 203°F (0 to 95°C)	32 to 203°F (0 to 95°C)
<b>Storage:</b>	-4 to 158°F (-20 to 70°C)	-4 to 158°F (-20 to 70°C)
<b>Pressure—Maximum:</b>	290 psi/20 bar (2 Mpa)	145 psi/10 bar (1 Mpa)
<b>Lead Wires</b>	(2) #22 AWG	(2) #22 AWG
<b>Weight:</b>	19.4 oz. (550 g)	0.7 oz. (20 g)

Specifications are subject to change without notice.



flow sensing

## ■ Applications

Typical applications for the FLS series will be on machines and appliances with flow switches designed into the system. The low cost FLS allows the use of the switch in applications where price for a flow switch previously prevented its use.

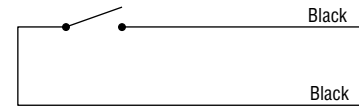
Applications include floor cleaning equipment, commercial appliances, vehicle and machinery cleaning equipment, beverage dispensing, water purification and filtering equipment.

Other uses include:

- To keep adequate supply of coolant, as DI water, glycol solution and fluorinate, for vehicle and semiconductor cooling equipment
- To monitor the filter clogging of water purification equipment
- To prevent pumps from running dry
- To cut off low water for water heating appliances
- To monitor the flow of air or N2

*Note: Noryl is not compatible with oil. Contact STI for optional materials.*

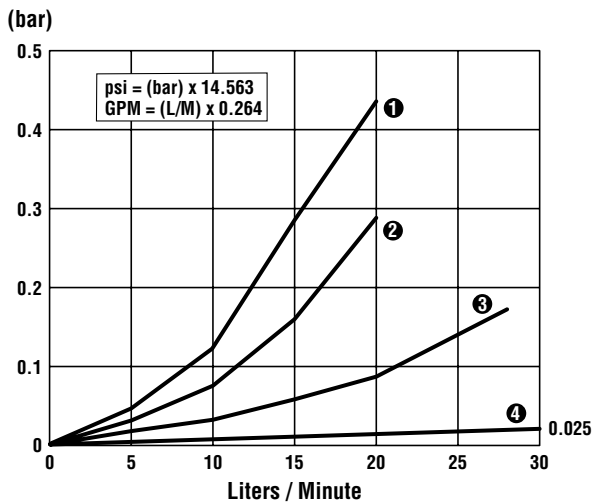
## ■ Wiring



## ■ Pressure Drop Chart



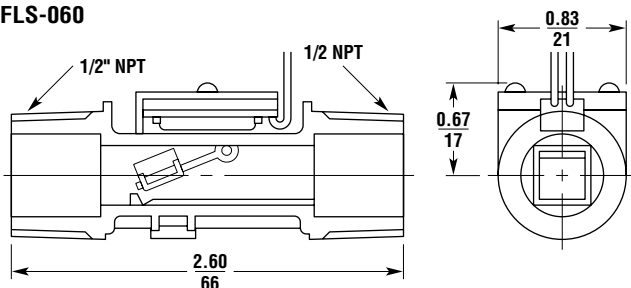
flow sensing



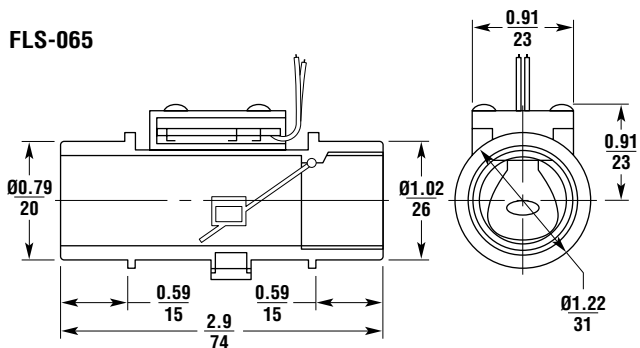
- ① = FLS-060 (A) (Setpoint = 0.5 - 1.2 L/m)
- ② = FLS-060 (A) (Setpoint = 1.2 - 4 L/m)  
= FLS-068  
= FLS-070
- ③ = FLS-61 and FLS-65
- ④ = FLS-080  
= FLS-075 and FLS-076  
= FLS-077 and FLS-078

■ Dimensions — in./mm

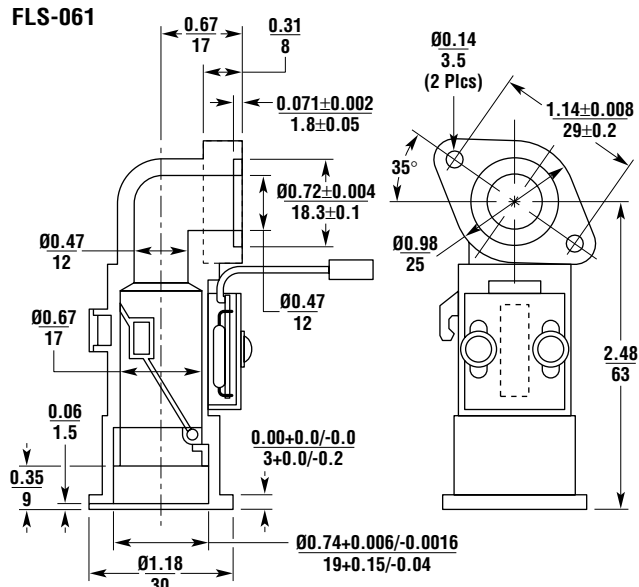
FLS-060



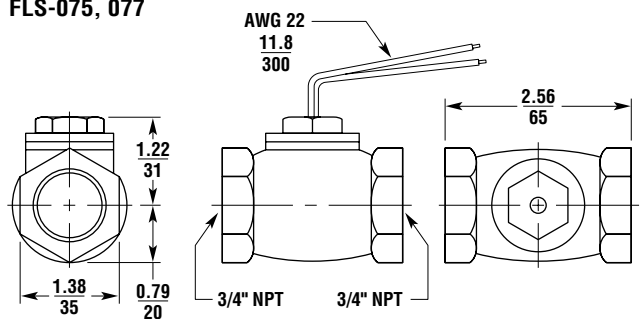
FLS-065



FLS-061



FLS-075, 077



■ Ordering Information

Model	Function	Flow Rate	Lead Lengths
060	1/2 NPT male mtg, Noryl body, 1-SPST		
061	Hose clamp mtg, Noryl body, 1-SPST		
065	Hose clamp mtg, Noryl body, 2-SPST		
068	1/2 NPT female mtg, brass body, 1-SPST		
070	1/2 NPT female mtg, stainless body, 1-SPST		
075	3/4 NPT female mtg, brass body, 1-SPST		
076	1 NPT female mtg, brass body, 1-SPST		
077	3/4 NPT female mtg, stainless body, 1-SPST		
078	1 NPT female mtg, stainless body, 1-SPST		
080	3/4 NPT male mtg, Noryl body, 1-SPST		
090	1/2 NPT male mtg, PP body, 1-SPST		
091	3/4 NPT male mtg, PP body, 1-SPST		
xxx	Other mounting		
NC	Normally closed below switch point		
NO	Normally open below switch point		
xx	Please specify switch point in GPM		
(null)	300 mm leads (standard)		
L__	Custom lead length		



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