



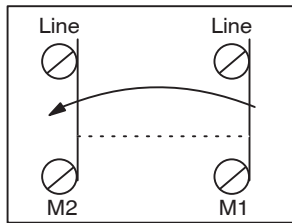
## F59 Series Sump Pump Switch

### Description

The F59 Series Controls are designed to start an electric motor on liquid level rise and stop the motor on liquid level drop. The control cuts in when upper weight is submerged approximately halfway, and cuts out when lower weight is approximately half-exposed. Each switch includes 36 in. cable and two weights.

Refer to the *F59 Series Liquid Level Switch for Sump Operations Product Bulletin (LIT-125215)* for important product application information.

Type F59A, F59H



Action on Rise in Liquid Level

F59 Series Action Diagram

f59.eps

### Features

F59D-5 is equipped with a power cord and a piggyback style plug. The external prongs plug into the wall outlet, and the sump pump cord plugs into the internal end of the plug.

### Applications

Use for On/Off control of sump pumps.

### Technical Specifications

#### Electrical Ratings

| Volts         | Horsepower |
|---------------|------------|
| <b>F59A-1</b> |            |
| 120 VAC       | 1 hp       |
| 240 VAC       | 1 hp       |
| 32 VDC        | 1/4 hp     |
| <b>F59A-2</b> |            |
| 120 VAC       | 1 hp       |
| 240 VAC       | 1 hp       |
| 32 VDC        | 1/4 hp     |
| <b>F59D-5</b> |            |
| 120 VAC       | 1/2 hp     |
| <b>F59H-1</b> |            |
| 120 VAC       | 1 hp       |
| 240 VAC       | 1 hp       |
| 32 VDC        | 1/4 hp     |



F59A-2 Sump Pump Switch

F59H-1 Sump Pump Switch

### Selection Charts

| Product Code Number | Contact Action                   | Mounting  | Range Adjuster                                   |
|---------------------|----------------------------------|---|--|
| F59A-1C             | Double-Pole, Single-Throw (DPST) | External mounting bracket   | Drop cord wiring                                 |
| F59A-2C             | DPST                             | External mounting – includes universal mounting bracket and 24 in. strap for quick, easy mounting on the motor, on the pedestal or on the discharge pipe. | Drop cord wiring                                 |
| F59H-1C             | DPST                             | External mounting bracket   | Conduit wiring –7/8 in. conduit openings in case |

### Replacement Parts

| Product Code Number | Replacement Weight Kit for F59 Series   |
|---------------------|---|
| WGT11A-600R         | Two Weights (Floats), 40 in. Plastic Cable, Weights with 3 in. Polyethylene Cable                 |
| WGT11A-604R         | Two Weights (Floats), 36 in. Monel Wire, Two Float Support Plates, Weights with 3 in. Monel Cable |



## F261 Series Fluid Flow Switches

### Description

The F261 Series Flow Switches respond to fluid flow in lines carrying water, ethylene glycol, or other nonhazardous fluids. These models also work in applications with swimming pool water and lubricating oils.

F261 Series Standard Flow Switches use a variety of paddle sizes to respond to fluid flow rates in applications with pipe sizes greater than 1 inch trade size.

Refer to the *F261 Series Fluid Flow Switches Product Bulletin (LIT-12011987)* for important product application information.

### Features

- Type 3R (NEMA) or Type 4 (NEMA) enclosure allows use in indoor or outdoor applications.
- Viton® diaphragms allow use in fluid lines carrying chlorinated water, treated water, or other nonhazardous fluids.
- low-flow operation on low-flow models actuates switch with less than 1.0 GPM (3.8 L/min) flow for water applications or 9.0 GPM (34.1 L/min) flow for steam applications.
- maximum fluid pressure of 290 psig (20 bar) permits use in a wide range of pressure flow conditions.



F261 Flow Switch

### Repair Information

If the F261 Series Flow Switch fails to operate within its specifications, replace the unit. For a replacement F261 Series Flow Switch, contact the nearest Johnson Controls® representative.

### Selection Chart

#### F261 Series Standard Model Flow Switches

| Product Code Number | Description  |
|---------------------|--|
| F261KAH-V01C        | Standard model flow switch with Type 3R (NEMA) enclosure; 1 in., 2 in., 3 in., and 6 in. stainless steel paddles, lock-tooth washer, and stainless steel paddle screw supplied uninstalled |
| F261MAH-V01C        | Standard model flow switch with Type 4 (NEMA) enclosure; 1 in., 2 in., 3 in., and 6 in. stainless steel paddles, lock-tooth washer, and stainless steel paddle screw supplied uninstalled  |
| F261MAL-V01C        | Standard model flow switch with Type 4 (NEMA) enclosure; 1 in., 2 in., 3 in., and 6 in. stainless steel paddles, lock-tooth washer, and stainless steel paddle supplied uninstalled.       |

#### F261 Series Low-Flow Model Flow Switches

| Product Code Number | Description  |
|---------------------|--|
| F261KEH-V01C        | Low-flow model flow switch with Type 3R (NEMA) enclosure; 1/2 in. x 1/2 in. External NPTF inlet and outlet |
| F261KFH-V01C        | Low-flow model flow switch with Type 3R (NEMA) enclosure; 3/4 in. x 3/4 in. External NPTF inlet and outlet |
| F261KFH-V02C        | Low-flow model flow switch with Type 3R (NEMA) enclosure; 3/4 in. x 3/4 in. External NPTF inlet and outlet |
| F261MEH-V01C        | Low-flow model flow switch with Type 4 (NEMA) enclosure; 1/2 in. x 1/2 in. External NPTF inlet and outlet  |
| F261MFH-V01C        | Low-flow model flow switch with Type 4 (NEMA) enclosure; 3/4 in x 3/4 in. External NPTF inlet and outlet   |

#### Replacement Paddle Parts

| Product Code Number | Description  |
|---------------------|--|
| KIT21A-600          | Stainless steel three-piece paddle (3 in., 2 in., and 1 in. segments)                                  |
| KIT21A-601          | Stainless steel 6 in. paddle   |
| PLT52A-600R         | Stainless steel three-piece paddle (3 in., 2 in., and 1 in. segments) and Stainless steel 6 in. paddle |

### Technical Specifications

#### F261xxH Series Standard Controls Electrical Ratings

| Volts, 50/60 Hz      | UL60730/UL1059 |     |     |     | EN60730 |     |
|----------------------|----------------|-----|-----|-----|---------|-----|
|                      | 24             | 120 | 208 | 240 | 24      | 230 |
| Horsepower           | –              | 1   | 1   | 1   | –       | –   |
| Full Load Amperes    | –              | 16  | 10  | 10  | –       | 8   |
| Locked Rotor Amperes | –              | 96  | 60  | 60  | –       | 48  |
| Resistive Amperes    | 16             | 16  | 10  | 10  | 16      | 16  |
| Pilot Duty VA        | 125            | 720 | 720 | 720 | 77      | 720 |



**F261 Series Fluid Flow Switches (Continued)**

**UL Conformity Declaration Information**

| Information                    | Description  |
|--------------------------------|--|
| Purpose of Control             | F261 Fluid Flow Switch   |
| Construction of Control        | Electronic independently mounted control   |
| Number of Cycles               | 100,000 cycles   |
| Method of Mounting Control     | Mounting to sensed media vessel/orientation  |
| Type 1 or Type 2 Action        | Type 1.C (Microinterruption)   |
| External Pollution Situation   | Pollution degree 4   |
| Internal Pollution Situation   | Pollution degree 2   |
| Rated Impulse Voltage          | 4,000 VAC  |
| Ball Pressure Temperature      | Enclosure: 266°F (130°C)<br>Switch Component: 252°F (122°C)  |
| Control Adjustment Instruction | -  |
| Field Wiring Rating            | <b>Wire/Cord Temperature Ratings:</b><br>140°F (60°C) only permitted when ambient air and media are less than 113°F (45°C)<br>167°F (75°C) only permitted when ambient air and media are less than 140°F (60°C)<br>194°F (90°C) only permitted when ambient air is less than 140°F (60°C) and media is less than 167°F (75°C)<br>302°F (150°C) permitted when ambient air is less than 140°F (60°C) and media is less than 249°F (121°C) |
| Vessel Pressure                | F261 Fluid Flow Switch: 290 psi (20 Bar)   |

| F261 Series Fluid Flow Switches        |   |
|--|---|
| Switch                                 | Single-Pole, Double-Throw (SPDT)  |
| Enclosure                              | UL: Type 3R or Type 4<br>CE: IP43 (IP23 with drain hole plug removed) or IP67   |
| Wiring Connections                     | Three color-coded screw terminals and one ground terminal   |
| Conduit Connection                     | One 7/8 in. (22 mm) hole for 1/2 in. trade size (or PG16) conduit   |
| Pipe Connector                         | Standard: 1 in. 11-1/2 NPT Threads  |
| Maximum Fluid Pressure                 | 290 psi (20 bar)  |
| Minimum Fluid Temperature <sup>1</sup> | -20°F (-29°C)   |
| Maximum Fluid Temperature <sup>2</sup> | 250°F (121°C)   |
| Ambient Conditions                     | -40 to 140°F (-40 to 60°C)  |
| Compliance                             | <p><b>North America:</b> cULus Listed; UL 60730, File E6688;<br/>FCC Compliant to CFR47, Part 15, Subpart B, Class B<br/>Industry Canada (IC) Compliant to Canadian ICES-003, Class B limits</p> <p><b>Europe:</b> CE Mark – Johnson Controls, Inc. declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the Low Voltage Directive.</p> <p><b>Australia/New Zealand Mark:</b> RCM Compliant</p> |



1. Ensure that the low liquid temperature combined with the low ambient temperature does not lead to the freezing the liquid inside the body (or bellows, where appropriate). Please observe the liquid freezing point.
2. At higher ambient temperatures, the maximum allowed liquid temperature becomes lower. The temperature of the electrical switch inside should not exceed 158°F (70°C).



## F262 Airflow Switch

### Description

The F262 Airflow Switch detects airflow or the absence of airflow by responding only to the velocity of air movement within a duct. The single-pole, double-throw (SPDT) control can be wired to open one circuit and close a second circuit for either signaling or interlock purposes.

Airflow failure during the normal operation of air handling systems may cause overheating, coil icing, or other conditions that may be detrimental to the equipment.

Refer to the *F262 Airflow Switch Product Bulletin (LIT-12011988)* for important product application information.

### Application

The F262 switch detects airflow or the absence of airflow by responding only to the velocity of air movement within a duct. The SPDT control can be wired to open one circuit and close a second circuit for either signaling or interlock purposes.

Failure of airflow during the normal operation of air handling systems may cause overheating, coil icing, and other conditions that may be detrimental to the equipment.

Typical applications include:

- Make-up air systems
- Air cooling or heating processes
- Exhaust systems

The control has a Type 3R (NEMA) enclosure with an integral mounting plate. A mounting plate gasket is supplied with each switch.

### Features

- Type 3R (NEMA) Polycarbonate enclosure allows use in indoor applications and provides dust protection and is approved for use in a plenum according to NEC
- dependable dust-protected SPDT snap-acting PENN switch detects the presence or absence of airflow
- large wiring space makes wiring convenient and easily accessible
- easily accessible range adjustment screw allows easy field adjustment



F262 Airflow Control

### Repair Information

If the F262 Airflow Switch fails to operate within its specifications, replace the unit. For a replacement F262 Airflow Switch, contact the nearest Johnson Controls® representative.

### Selection Charts

#### F262 Airflow Switch

| Product Code Number | Description   |
|---------------------|---|
| F262KDH-01C         | Airflow switch with a 2-1/8 in. wide x 6-7/8 in. long (54 mm x 175 mm) paddle installed and a 3-1/8 in. wide x 6-7/8 in. long (79 mm x 175 mm) paddle supplied with the control |

#### Replacement Paddle Kits for F262 Switch

| Product Code Number | Description   |
|---------------------|---|
| PLT112-1R           | 2-1/8 in. wide x 6-7/8 in. long (54 mm x 175 mm) paddle |
| PLT112-2R           | 3-1/8 in. wide x 6-7/8 in. long (79 mm x 175 mm) paddle |


### Technical Specifications

#### F262 Switch Electrical Ratings

| Volts 50/60 Hz       | UL60730 |     |     |     | EN60730 |     |
|----------------------|---------|-----|-----|-----|---------|-----|
|                      | 24      | 120 | 208 | 240 | 24      | 230 |
| Horsepower           | –       | 1   | 1   | 1   | –       | –   |
| Full Load Amperes    | –       | 16  | 10  | 10  | –       | 8   |
| Locked Rotor Amperes | –       | 96  | 60  | 60  | –       | 48  |
| Resistive Amperes    | 16      | 16  | 10  | 10  | 16      | 16  |
| Plot Duty VA         | 125     | 720 | 720 | 720 | 125     | 720 |



**F262 Airflow Switch (Continued)**

| F262 Series Airflow Switch  |   |
|---|---|
| Switch  | SPDT  |
| Enclosure   | UL: Type 3R<br>CE: IP43   |
| Wiring Connections  | Three color-coded screw terminals and one ground terminal   |
| Conduit Connection  | One 7/8 in. (22 mm) hole for 1/2 in. trade size (or PG16) conduit   |
| Paddle Material   | 0.006 in. (0.15 mm) stainless spring steel  |
| Maximum Air Velocity  | 2,000 FPM (10.16 m/s)   |
| Maximum Duct Air Temperature  | 176°F (80°C)  |
| Ambient Conditions  | 32 to 104°F (0 to 40°C)   |
| Compliance<br><br> | <b>North America:</b> cULus Listed; UL 60730, File E6688;<br>FCC Compliant to CFR47, Part 15, Subpart B, Class B<br>Industry Canada (IC) Compliant to Canadian ICES-003, Class B limits                       |
|   | <b>Europe:</b> CE Mark – Johnson Controls, Inc. declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the Low Voltage Directive. |
|   | <b>Australia/New Zealand Mark:</b> RCM Compliant  |



## F263 Series Liquid Level Float Switches

### Description

The F263 Series Liquid Level Float Switches are designed to maintain a liquid level in indoor or outdoor closed tanks that hold water or other nonhazardous liquids. When the liquid level in the tank rises above or falls below the required level, the single-pole, double-throw (SPDT) switch closes one circuit and opens a second circuit.

Refer to the *F263 Series Liquid Level Float Switches Product Bulletin (LIT-12011989)* for important product application information.

### Application

Use F263 Series Float Switches in closed tanks where a liquid level is to be maintained. A change in the liquid level opens or closes an electrical circuit.

Use F263MAP switches on indoor or outdoor tanks that hold water or other nonhazardous liquids at temperatures greater than the liquid's freezing point and between -20°F (-29°C) and 212°F (100°C). The maximum allowable liquid pressure is 150 psig (1,035 kpa).

Use F263MAC switches on indoor or outdoor tanks that hold water or other nonhazardous liquids at temperatures greater than the liquid's freezing point and between -20°F (-29°C) and 250°F (121°C). The maximum allowable liquid pressure is 100 psig (690 kpa).

Note: Do not use these float switches with liquids that are lighter than water.

### Features

- Viton® diaphragm allows use in fluid lines carrying chlorinated water, treated water, or other nonhazardous liquids.
- single-pole, double-throw switch provides control where liquid levels rise and fall
- sturdy Type 4 (NEMA) enclosure allows for use in indoor or outdoor applications; inhibits the formation of moisture in low temperature applications.
- solid polycarbonate float (F263MAP models) provides greater resistance to corrosion



F263 Liquid Level Float Switch

### Repair Information

If the F263 Series Liquid Level Float Switch fails to operate within its specifications, replace the unit. For a replacement F263 Switch, contact the nearest Johnson Controls® representative.

### Selection Chart

| Product Code Number | Description  |
|---------------------|--|
| F263MAC-V01C        | SPDT float switch with Type 4 (NEMA) enclosure and copper float for liquid temperatures -20 to 250°F (-29 to 121°C); maximum liquid pressure 100 psig (690 kPa)          |
| F263MAP-V01C        | SPDT float switch with Type 4 (NEMA) enclosure and polycarbonate float for liquid temperatures -20 to 212°F (-29 to 100°C); maximum liquid pressure 150 psig (1,035 kPa) |


### Technical Specifications

#### F263 Switch Electrical Ratings

| Volts 50/60 Hz       | UL60730 |     |     |     | EN60730 |     |
|----------------------|---------|-----|-----|-----|---------|-----|
|                      | 24      | 120 | 208 | 240 | 24      | 230 |
| Horsepower           | –       | 1   | 1   | 1   | –       | –   |
| Full Load Amperes    | –       | 16  | 10  | 10  | –       | 8   |
| Locked Rotor Amperes | –       | 96  | 60  | 60  | –       | 48  |
| Resistive Amperes    | 16      | 16  | 10  | 10  | 16      | 16  |
| Plot Duty VA         | 125     | 720 | 720 | 720 | 125     | 720 |



**F263 Series Liquid Level Float Switches (Continued)**

| F263 Series Liquid Level Float Switches   |   |
|---|---|
| Switch  | SPDT  |
| Enclosure   | UL: Type 4 (NEMA)<br>CE: IP67   |
| Wiring Connections  | Three color-coded screw terminals and one ground terminal   |
| Conduit Connection  | One 7/8 in. (22 mm) hole for 1/2 in. trade size (or PG16) conduit   |
| Pipe Connector  | 1 in. 11-1/2 NPT threads  |
| Minimum Tank Diameter   | 9 in. (229 mm)  |
| Maximum Liquid Pressure   | 100 psig (690 kPa) for copper float<br>150 psig (1,035 kPa) for polycarbonate float   |
| Liquid Temperature Range  | Minimum: -20°F (-29°C) or liquid freezing point<br>Maximum: 212°F (100°C) polycarbonate, 250°F (121°C) copper   |
| Ambient Conditions  | Minimum: -40°F (-40°C)<br>Maximum: 140°F (60°C)   |
| Compliance<br><br> | <b>North America:</b> cULus Listed; UL 60730, File E6688;<br>FCC Compliant to CFR47, Part 15, Subpart B, Class B<br>Industry Canada (IC) Compliant to Canadian ICES-003, Class B limits                       |
|   | <b>Europe:</b> CE Mark – Johnson Controls, Inc. declares that this product is in compliance with the essential requirements and other relevant provisions of the EMC Directive and the Low Voltage Directive. |
|   | <b>Australia/New Zealand Mark:</b> RCM Compliant  |



## F61 and F62 Series Replacement Paddles

### Selection Chart

| Replacement Kit Number | Description                                      |
|------------------------|--|
| KIT21A-600             | 3-in-1 stainless steel paddle kit for F61 Series |
| KIT21A-601             | 6 in. stainless steel paddle kit for F61 Series  |
| PLT112-1               | Replacement paddle for F62AA-8                   |
| PLT112-2               | Replacement paddle for F62AA-9                   |





## F92 Series Air Volume Controls for Shallow Wells

### Description

The F92 Series Air Volume Controls for Shallow Wells control the amount of air in the residential water storage tanks of shallow well water systems. Shallow wells are less than 25 ft. (7.6 m) deep.

F92 Series Controls automatically maintain air volume in the storage tanks of shallow well water systems by allowing room air to enter into the air charging section of the pump when the water level in the tank rises (loss of air volume).

F92 Controls open the air valve on a rise in tank water level to permit charging air into the storage tank with pressures up to 80 psig (552 kPa).

Refer to the *F92 Series Air Volume Controls for Shallow Wells Product Bulletin (Part No. 24-7664-2993)* for important product application information.

### Features

- sturdy Noryl (high performance thermoplastic) body resists mechanical damage and corrosion.
- brass internal operating parts minimize corrosion.
- pressure tested plastic float provides long operating life.
- optional pressure gauge tapping allows mounting of a pressure gauge.



F92 Series Air Volume Control for Shallow Wells

### Application

Water storage tanks in residential water systems rely on a volume of air in the tank to provide system pressure, making it important to control the amount of air in the tank:

- Too little air in the tank results in rapid pump cycling — a problem common in shallow well systems (less than 25 ft [7.6 m] deep).
- Too much air in the tank results in air entering the distribution system — a problem common in deep well systems (more than 25 ft [7.6 m] deep).

### Repair Information

If the F92 Series Air Volume Controls for Shallow Wells fails to operate within its specifications, replace the unit. For a replacement F92 Series control, contact the nearest Johnson Controls® representative.

### Selection Chart

| Product Code Number | Description  |
|---------------------|--|
| F92A-4C             | Air Volume Control for Shallow Wells, opens on pressure rise, barbed fitting on charger valve  |
| F92B-1C             | Air Volume Control for Shallow Wells, opens on pressure rise, 1/4-18 PTF SAE short gage tap, 0.016 in. (0.5 mm) valve orifice. Use this model in applications where excessive airflow may reduce water pumping capacity. |
| F92B-2C             | Air Volume Control for Shallow Wells, opens on pressure rise, 1/4-18 PTF SAE short gage tap  |

### Technical Specifications

| F92 Series Air Volume Control for Shallow Wells |  |
|---|--|
| Body Material                                   | 30% glass-filled Noryl thermoplastic                               |
| Float Material                                  | Plastic with brass rod   |
| Maximum Tank Pressure                           | 80 psig (552 kPa)  |
| Shipping Weight                                 | Individual: 0.25 lb (0.11 kg)<br>Bulk pack (30): 30.9 lb (4.08 kg) |
| Tank Connector Size                             | 1-1/4 in. external NPT   |
| Air Flow Restrictor Orifice                     | F92B-1C Model: 0.016 in. (0.5 mm)                                  |
| Snifter Line Connection                         | Flare fitting for 3/16 in. (5 mm) tubing                           |



## F93 Series Air Volume Controls for Deep Wells

### Description

The F93 Series Air Volume Controls for Deep Wells control the amount of air in the residential water storage tanks of deep well water systems. Deep wells are more than 25 ft (7.6 m) deep.

F93 Series Controls automatically maintain air volume in the storage tanks of deep well water systems by allowing air to escape from the tank and into the surrounding room when the water level in the tank drops (increase of air volume).

F93 deep well controls open the air valve on a fall in tank water level to bleed excess air from the tank at pressures up to 100 psig (690 kPa).

The F93H has a minimum pressure release valve to avoid lowering tank pressure below 25 psig (172 kPa). Use this model on applications where water may be rapidly drained.

Refer to the *F93 Series Air Volume Controls for Deep Wells Product Bulletin (Part No. 24-7664-3000)* for important product application information.

### Features

- sturdy Noryl (high performance thermoplastic) body resists mechanical damage and corrosion.
- brass internal operating parts minimize corrosion.
- pressure tested plastic float provides long operating life.
- optional pressure gauge tapping allows mounting of a pressure gauge.
- certification for Federal Safe Drinking Water Act (SDWA) meets the US Federal standards of the Reduction of Lead in Drinking Water Act.



F93 Series Air Volume Control for Deep Wells

### Application

Water storage tanks in residential water systems rely on a volume of air in the tank to provide system pressure, making it important to control the amount of air in the tank:

- Too little air in the tank results in rapid pump cycling - a problem common in shallow well systems (less than 7.6 m [25 ft] deep).
- Too much air in the tank results in air entering the distribution system — a problem common in deep well systems (more than 7.6 m [25 ft] deep).

### Repair Information

If the F93 Series Air Volume Controls for Deep Wells fails to operate within its specifications, replace the unit. For a replacement F93 Series control, contact the nearest Johnson Controls® representative.

### Selection Chart

| Product Code Number | Description   |
|---------------------|---|
| F93A-1C             | Air Volume Control for Deep Wells, opens on pressure drop, no gage tap, no pressure release valve   |
| F93B-1C             | Air Volume Control for Deep Wells, opens on pressure drop, 1/4-18 PTF SAE short gage tap, no pressure release valve   |
| F93H-1C             | Air Volume Control for Deep Wells, opens on pressure drop, 1/4-18 PTF SAE short gage tap, with 25 psig (172 kPa) minimum air pressure release valve. Use this model in applications where water may be rapidly drawn from the system. |

### Technical Specifications

| F93 Series Air Volume Control for Deep Wells |  |
|--|--|
| Body Material                                | 30% glass-filled Noryl thermoplastic   |
| Float Material                               | Plastic with brass rod   |
| Maximum Tank Pressure                        | 100 psig (690 kPa)   |
| Shipping Weight                              | Individual: 0.25 lb (0.11 kg)<br>Bulk pack (30): 30.9 lb (4.08 kg)   |
| Tank Connector Size                          | 1-1/4 in. external NPT   |
| Compliance                                   | United States Federal Safe Drinking Water Act (SDWA) Compliant,<br>Underwriters Laboratories Classified in Accordance with NSF/ANSI 372 (File MH59894) |