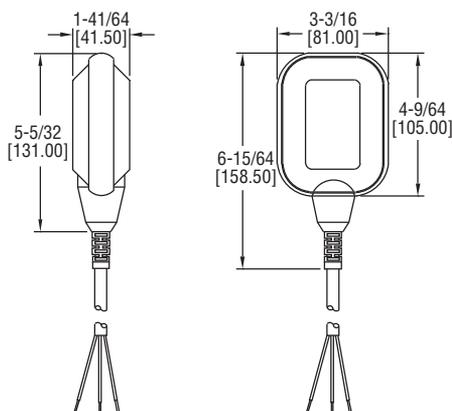




## Series CFS2 Cable Float Switch

### Specifications - Installation and Operating Instructions



The **Series CFS2 Cable Float Switch** is a mechanically actuated floating switch intended to activate electrical components, usually pumps, to start and stop automatically. The CFS2 is perfect for simple level control of liquids for filling or draining reservoirs and tanks. Float switches such as the CFS2 are the most universally used for pump automation due to their high reliability, economical pricing, and easy installation. Counterweights and cable hangers are available to suit a variety of mounting applications. Optional cables available include those with UL/CSA approval, higher chemical compatibility, high temperature durability, oil resistance, and drinking water suitability. Contact factory for piggyback plug option, gold contact switch option and cable length options ranging from 10 to 70 ft (3.04 to 21.34 m).

#### SPECIFICATIONS

**Service:** Compatible liquids.

#### Wetted Materials:

Housing: Polypropylene;  
 Cable: CFS2-XXPXX-XX: PVC;  
 CFS2-XXNXX-XX: Neoprene;  
 CFS2-XXSXX-XX: 3x16 AWG SJOW;  
 CFS2-XXTXX-XX: Rubber compound EM7 quality;  
 CFS2-XXWXX-XX: EPDM ethylene propylene.

**Temperature Limits:** 32 to 122°F (0 to 50°C).

**Pressure Limits:** 14.5 psi (1 bar).

**Enclosure Rating:** IP68.

#### Switch Type:

CFS2-DXXXX-XX: SPDT;  
 CFS2-CXXXX-XX: SPST;  
 CFS2-OXXXX-XX: SPST.

#### Electrical Rating:

CFS2-XXAXX-XX  
 10 (4) A @ 250 VAC;  
 CFS2-XXBXX-XX  
 10 (8)A @ 250 VAC;  
 CFS2-XXCXX-XX  
 10 (8)A @ 250 VAC;  
 10 (6)A @ 400 VAC;  
 CFS2-XXDXX-XX  
 1 HP @ 125 VAC 16 FLA;  
 2 HP @ 250 VAC 12 FLA;  
 CFS2-XXEXX-XX  
 0.05 A @ 250 VAC.

#### Shipping Weight:

Housing: 5.43 oz (154 g);  
 Cable: 0.77 oz (21.27 g) per foot.

**Agency Approvals:** CFS2-XGDSX-XX: UL and CSA approved, all others CE.

## INSTALLATION INSTRUCTIONS

The basic operating principle of the CFS2 is very simple. As fluid level rises the float will also rise, resulting in a tilt of the micro-switch located inside the housing. This tilt will generate a signal that can be used to actuate a motor or signal an indicator alarm. To ensure the proper function of the CFS2, it is necessary to secure the electric cable inside the tank or well as illustrated in Figures 1 and 2. The length of the cable measured between the fixture point and the body of the CFS2 determines the total extension of the float and also the resulting distance between the pump stopping and starting level. It is essential to ensure that there are no obstructions in the CFS2 operational area before operation. During operation, **adjustments to the CFS2 cable must not be made under any circumstances**, due to the fact that any unwanted cable connections made while the CFS2 is immersed in water can lead to electric shock. There are two installation options for this cable float switch. One method is to fix the cable of the CFS2 to the reservoir or container with the use of a small clamp, another technique would be to attach the accessory A-457 counterweight to the cable of the float switch a desired distance between the highest and lowest level desired. **Note:** With the use of the counterweight, the length of cable between the float and fixed point (starting and stopping indication) can be freely adjusted.

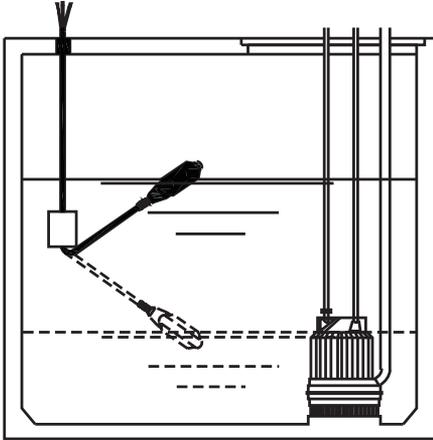


Figure 1-Emptying

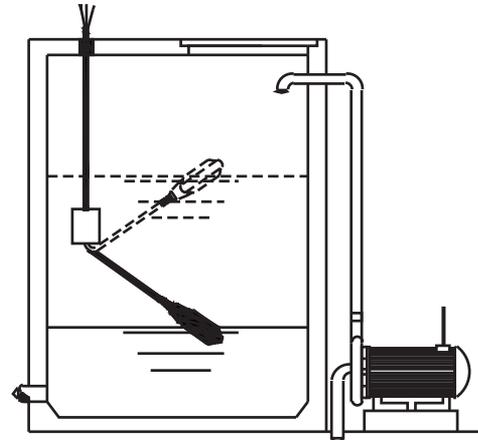


Figure 2-Filling

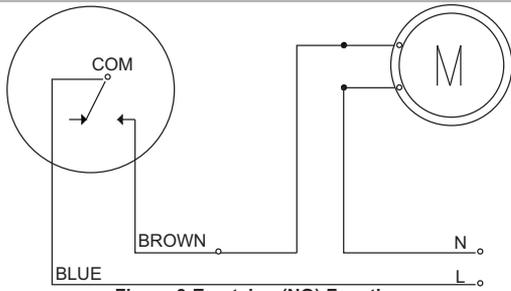
## ELECTRICAL CONNECTIONS

The Series CFS2 features a variety of different cable options. One of these options includes the selection between SPST and SPDT. SPST, single pole single throw, allows a single operating function with the choice of operation on increasing level (NC/filling) or operation on decreasing level (NO/emptying), depending on the model selection. SPDT, single pole double throw allows for operation of both increasing and decreasing level, depending on the connections made between the terminals of the micro-switch and the cable. SPDT, which is a four-conductor cable (ground option) or a three-conductor cable (without ground option), has one lead that is common, one that is normally open (NO), and the other that is normally closed (NC), for the proper connections of these conductors please refer to the wiring diagrams in Figures 3 to 12.

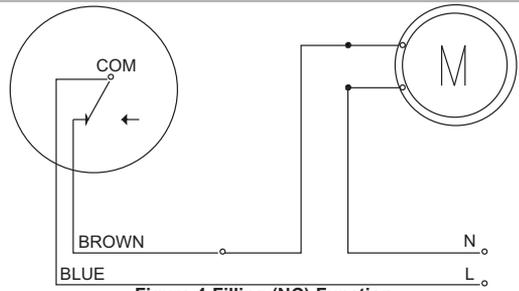
### NOTICE

When making the connections described above, ensure that the maximum motor power does not exceed the values indicated on the level switch. The power supply cable is an important part of the CFS2. Should the cable appear to be damaged, discontinue use immediately and proceed to replace the unit. The yellow/green wire found on some units is the ground wire and must be connected to a suitable ground terminal with the dimension greater than 1 mm<sup>2</sup>. The terminal used must also be protected against accidental break.

**WIRING DIAGRAMS**  
2 x 1 CABLE

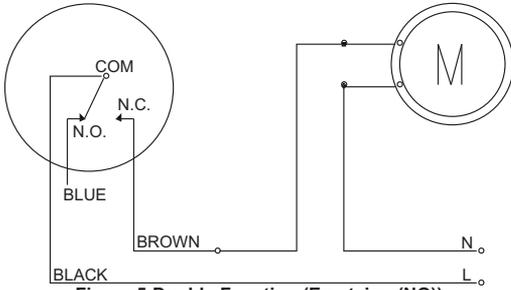


**Figure 3-Emptying (NO) Function**  
**CFS2-ONXXX-XX**

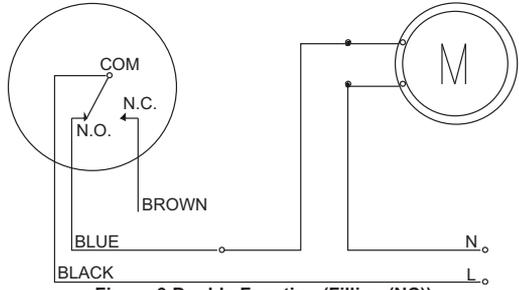


**Figure 4-Filling (NC) Function**  
**CFS2-CNXXX-XX**

**3 x 1 CABLE**

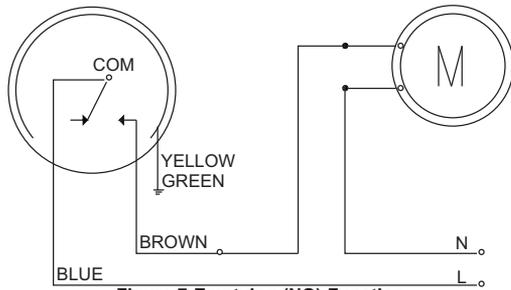


**Figure 5-Double Function (Emptying (NO))**  
**CFS2-DNXXX-XX**

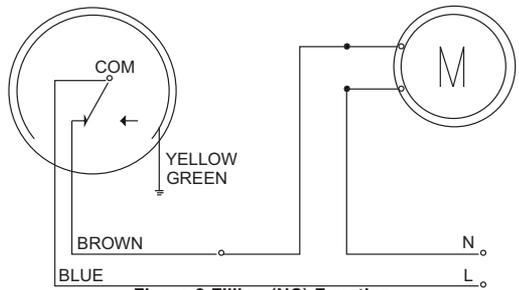


**Figure 6-Double Function (Filling (NC))**  
**CFS2-DNXXX-XX**

**3G1 CABLE**

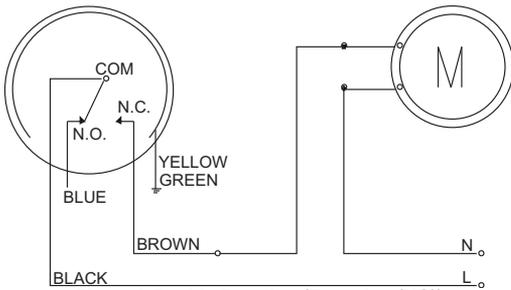


**Figure 7-Emptying (NO) Function**  
**CFS2-OGXXX-XX**

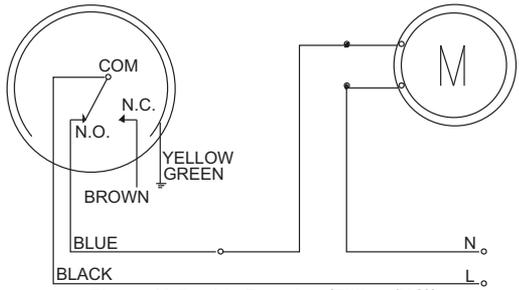


**Figure 8-Filling (NC) Function**  
**CFS2-CGXXX-XX**

**4G1 CABLE**

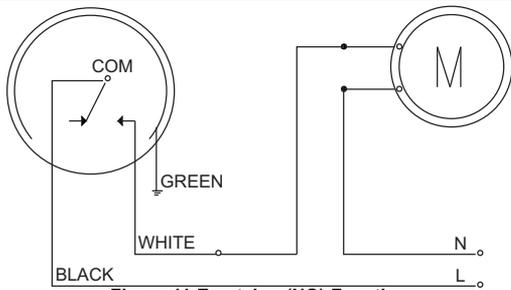


**Figure 9-Double Function (Emptying (NO))**  
**CFS2-DGXXX-XX**

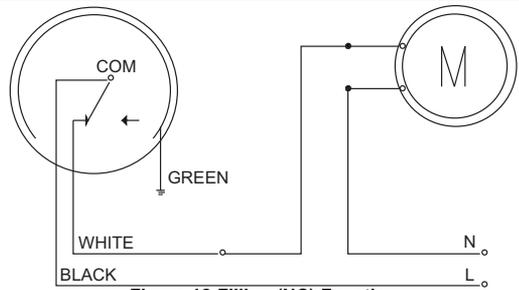


**Figure 10-Double Function (Filling (NC))**  
**CFS2-DGXXX-XX**

**SJOW 3 x 16 AWG CABLE (UL APPROVED)**



**Figure 11-Emptying (NO) Function**  
**CFS2-OGESX-XX**



**Figure 12-Filling (NC) Function**  
**CFS2-CGESX-XX**

Correctly insulate any wire not in use!

### INSTALLATION OF COUNTERWEIGHT

For correct counterweight installation, refer to the following procedure as well as the illustration in Figure 13.

1. Insert the cable into the counterweight, turning it. This will result in the detachment of the plastic ring inserted in the mouth (if necessary use a screwdriver to aid in the detachment of the ring). Place the ring at the point on the cable where the counterweight is to be attached.
2. Attach the counterweight on the ring by turning it and using moderate pressure. (Counterweight sold separately).

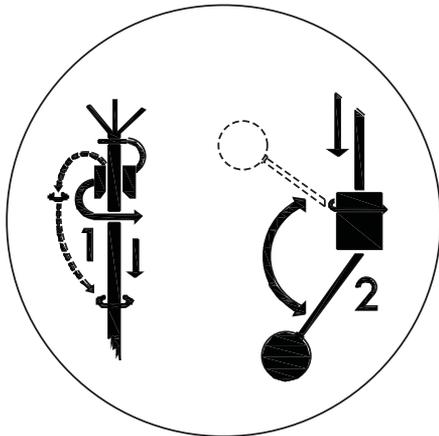


Figure 13-Counterweight Installation

### MAINTENANCE & REPAIR

Inspect and clean wetted parts with water or damp cloth at regular intervals. Disassembly or modifications made by the user will void the warranty and could impair the continued safety of the product. If repair is required obtain a Return Goods Authorization (RGA) number and send the unit, freight prepaid, to the address below. Please include a detailed description of the problem and conditions under which the problem was encountered.

Dwyer Instruments, Inc.  
Attn: Repair Department  
102 Indiana Hwy 212  
Michigan City, IN 46361