

# SD1 Safety Disconnect

## SD1-SP-A, and SD1-DP-A Installation Instructions



**Integrated  
Control  
Systems**

**WARNING:** This product **MUST** be installed by qualified personnel only. It must be installed in compliance with local and national electrical codes and intrinsic safety standards. ICS is not responsible for damages or losses resulting from misuse or incorrect installation of this product.

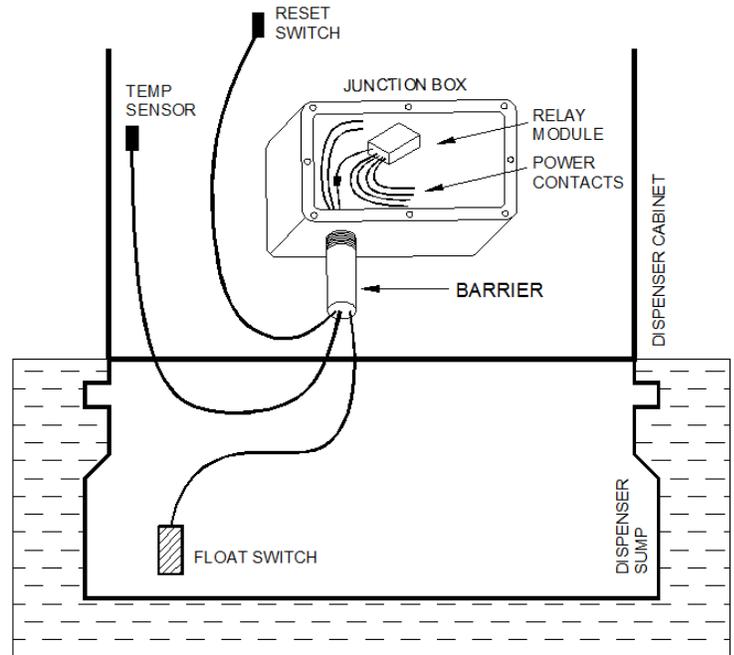
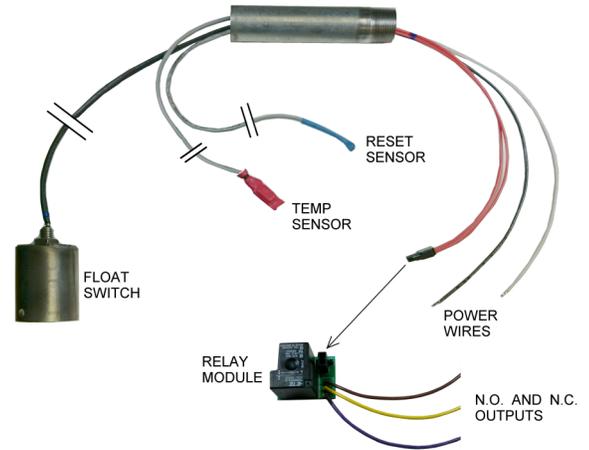
The SD1 Safety Disconnect is used in fuel site sumps to automatically disconnect power to equipment in the event of a fuel leak or fire. It contains a chemical resistant stainless steel float switch and a thermal sensor to detect fire. An included reset switch allows the service technician to reset the SD1 after the fault condition is corrected. Read through the instructions completely before beginning installation.

### I. PARTS IDENTIFICATION:

1. Open the packaging and verify that the required parts are present. Use the diagram at upper right to identify the SD1 components.

### II. INSTALLATION:

1. Disconnect power from the junction box at the circuit breaker.
2. Leave the relay module disconnected from the barrier. Locate an unused 3/4" threaded fitting on the junction box and install the threaded barrier.
3. Connect the orange wires to the relay module using the attached connector. Make sure that the connector is oriented the correct direction and is firmly latched. The relay module remains inside the j-box.
4. Route the float switch wire down to the sump. The float switch may sit on the bottom of the sump, or it may hang from the wire. To hang the float switch, use a wire tie to fasten the float switch wire to a pipe or conduit above the sump.
5. Select a location for the temperature sensor. It should be mounted away from anything that is normally hot during operation like pump motors or solenoid valves. Route the sensor wire to the desired location and fasten it with wire ties.
6. Select a location for the reset switch. It should be mounted in a location with easy access from the sump, as it will be used after the technician has corrected the source of the SD1 trigger. Route the reset switch wire to the desired location and fasten it with wire ties.
7. The SD1 can operate from either 110VAC or 220VAC. Connect the AC power supply to the wires as shown in the wiring connections table at right.
8. The relay module contains both normally open and normally closed contacts, allowing power to be disconnected, and an annunciator to be switched on if desired. Connect the relay module wires to the desired load and/or annunciator. The load should be connected to the normally open contacts. SD1-DP models have 2 relay modules and 2 sets of contacts. See attached wiring example. If you are unsure of the correct connection, contact ICS technical support.



### Wiring Connections:

#### Barrier

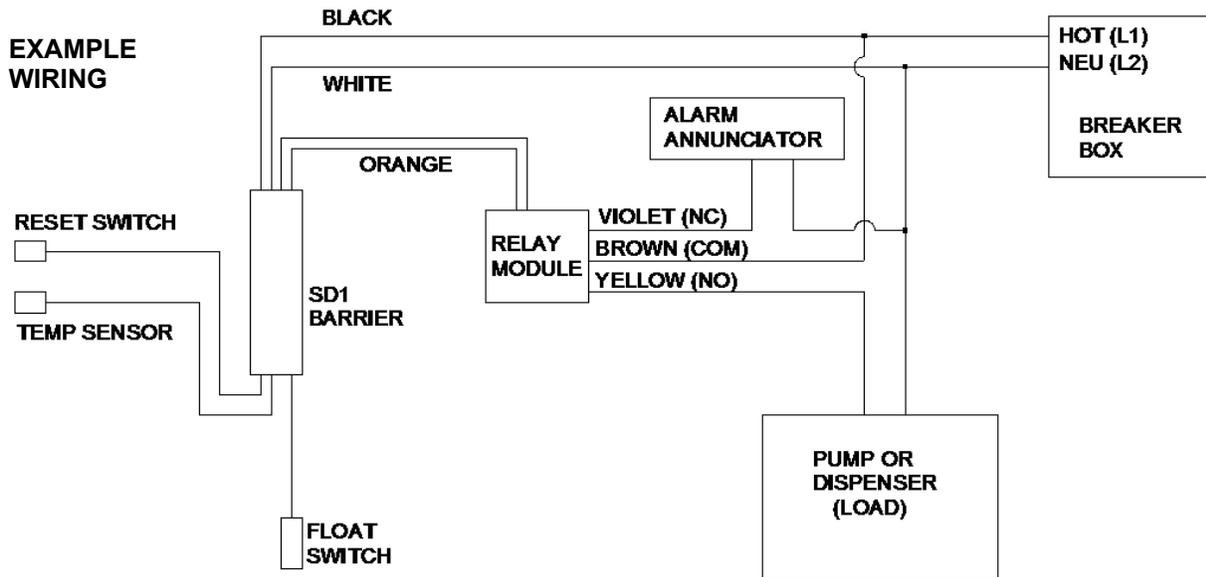
- |          |                |              |
|----------|----------------|--------------|
| 1. Black | 110VAC HOT     | or 220VAC L1 |
| 2. White | 110VAC Neutral | or 220VAC L2 |

#### Relay Module:

- |           |                 |
|-----------|-----------------|
| 1. Brown  | Common          |
| 2. Violet | Normally Closed |
| 3. Yellow | Normally Open   |

### III. TESTING:

1. Connect AC power to the SD1 and the load. On power-up, the SD1 will monitor the status of the float switch and temperature sensor for several seconds, and then switch the relay module ON. This in turn will power the load. If the load does not power-on, make sure the float switch is in the down position and that the load is connected to the normally open contacts.
2. Manually raise the float switch for 5 seconds or more. The SD1 will de-energize the relay module, disconnecting power from the load. Note that once the SD1 is triggered, lowering the float switch again will not re-apply power to the load.
3. Manually lower the float switch.
4. Press and hold the reset switch for 5 seconds. The SD1 should re-energize the relay module, powering on the load again. *(The SD1 may also be reset by cycling the AC power off for 10 seconds and back on. Remember that the float switch must be in the down position before the relay module will be energized.)*
5. The SD1 temperature sensor triggers the SD1 in the same manner as the float switch. It is not recommended however to test the temperature sensor in a fueling environment. The temperature sensor is tested and calibrated at the factory.



SD1 SPECIFICATIONS			
Barrier Specification		Relay Module Specification	
AC Input Voltage	90VAC to 280VAC	Max. Relay Switching voltage	300VAC
Operating Current Draw	30mA typical	Max Switching Current NC contacts	30A
Operating Temperature	-40 to 150 deg. F	Max Switching Current NO contacts	15A
Float Switch wire length	48 inches	Operating Temperature	-40 to 150 deg. F
Temperature Sensor wire length	48 inches		
Reset Switch wire length	48 inches		

As defined in article 501 – Class 1, Division 1, Groups C and D Locations of the National Electric Code, this apparatus and its interconnected components are intrinsically safe. Under normal or defined fault conditions this apparatus and its wiring cannot release sufficient energy to ignite a specific ignitable atmospheric mixture by opening, shorting, or grounding.

SD1 MODEL NUMBERS	
Model Number:	Description:
SD1-SP-A	SD1 Safety Disconnect, Single Relay, Rev. A
SD1-DP-A	SD1 Safety Disconnect, Dual Relay, Rev. A

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