

# 111P / 233P / 233P-1.5 SERIES

## Single-Phase Pump Monitor



### Description

The Littelfuse Models 111P (115 V, 1/3 to 1 hp); 233P-1.5 (230 V, 1/3 to 1.5 hp); and 233P (230 V, 1/3 to 3 hp) protect pumps from dry-well, dead-head, jammed impeller, overvoltage/undervoltage conditions, and rapid-cycle protection whether the pressure switch is mounted before or after our unit.

A calibration adjustment allows the unit to be calibrated to your specific pumping applications, thereby reducing the possibility of false or nuisance tripping. A unique microcontroller-based voltage and current-sensing circuit constantly monitors the incoming power for fluctuations, overcurrent, and undercurrent. When an abnormality, such as loss of suction is detected, the unit deactivates its output relay and directly disconnects the pump motor. The unit then begins its user-selectable restart delay (dry-well recovery) timer. When the timer counts to zero or power is removed and reapplied, the unit reactivates its output relay and turns the pump back on.

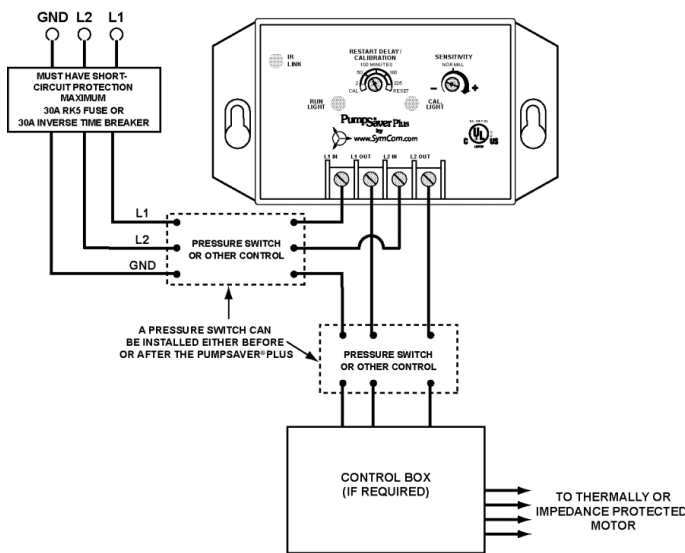
The infrared LED communicates with a hand-held diagnostics tool called the Informer (sold separately). The Informer displays parameters including calibration points, trip points, run time and last faults.

**Special considerations for pump cables larger than #10 AWG:** In some cases where larger motors are installed with deep set pumps, pump cables are used that exceed the relay's terminal size. In these conditions, a short splice of #10 AWG or #12 AWG may be a solution at the control box.

**Note:** All local, state and national electric codes should be followed when applying this solution.

**NOTE:** The 111P/233P/233P-1.5 models have a sensitivity adjustment for the dry-well trip point. After calibration is done, you can adjust the sensitivity for the dry-well/dead-head trip point from 70-90 % of the full load. This makes the unit even more adaptable to varying pumping applications. If you have a very low producing well, you increase the sensitivity closer to the 90 % mark, or if you have a very heavy producing well, you would decrease the sensitivity around the 70 % mark.

### Wiring Diagram



### Ordering Information

MODEL	LINE VOLTAGE	DESCRIPTION
111P	115 V ac	Load Range: 1/3 - 1 hp
111P-ENCL	115 V ac	111P with NEMA3R enclosure
233P	230 V ac	Load Range: 1/3 - 3 hp
233P-ENCL	230 V ac	233P with NEMA3R enclosure
233P-1.5	230 V ac	Load Range: 1/3 - 1.5 hp
233P-1.5-ENCL	230 V ac	233P-1.5 with NEMA3R enclosure

### Features & Benefits

FEATURES	BENEFITS
<b>Proprietary microcontroller based circuitry</b>	Constant monitoring of voltage, power factor, current for reliable pump protection
<b>Onboard calibration process</b>	Calibrates unit to your specific individual pumping application and reduces nuisance tripping
<b>Onboard sensitivity adjustment</b>	User adjustable sensitivity knob makes the unit more adaptable to varying pumping applications

### Accessories



#### Informer

A hand-held diagnostic tool that uses an infrared receiver to access information which can be helpful for troubleshooting the system.

## 111P / 233P SERIES

### Specifications

#### Functional Specifications

##### Adjustments/Settings

**Overcurrent** 125 % of calibration point  
**Underload (dry-well)** Adjustable (70 to 90 % of calibrated run power)

**Overvoltage**  
**111P** 132.5 V ac  
**233P, 233P-1.5** 265 V ac

**Undervoltage**  
**111P** 95 V ac  
**233P, 233P-1.5** 190 V ac

**Number of restarts allowed  
in a 60-sec. period  
(rapid-cycling)** 4

#### Trip Delay Times

**Overcurrent** 5 seconds  
**Dry-well** 4 seconds

#### Restart Delay Times

**Over/Undervoltage** 2 seconds  
**All other faults** Manual, 2-225 minutes

#### Input Characteristics

##### Supply Voltage

**111P** 115 V ac  
**233P-1.5, 233P** 230 V ac

##### Load Range:

**111P**  $\frac{1}{3}$  – 1 hp  
**233P-1.5**  $\frac{1}{3}$  – 1.5 hp  
**233P**  $\frac{1}{3}$  – 3 hp

**Frequency** 50/60 Hz  
(Note: 50 Hz will increase all delay timers by 20 %)

#### Output Characteristics

##### Output Contact Rating-SPST

**111P** 1 hp @ 120 V ac (16 amps max.)  
**233P-1.5** 1.5 hp @ 240 V ac (10 amps max.)  
**233P** 3 hp @ 240 V ac (17 amps max.)

#### General Characteristics

**Operating Temperature** -40 °C to 55 °C (-40 °F to 131 °F)

**Maximum Input Power** 5 W

**Wire Gauge** Solid or Stranded 10 - 22 AWG

**Terminal Torque** 13 in.-lbs.

#### Safety Marks

**cULus Listed**

#### Dimensions

UL 508, C22.2 No. 14  
**H** 73.66 mm (2.9"); **W** 133.35 mm (5.25");  
**D** 73.99 mm (2.913")

#### Weight

14 oz.

#### Mounting Methods

#8 screws