Description
The Littelfuse models 111P (115 volt, \(\frac{1}{2}\) to 1 hp); 233P-1.5 (230 volt, \(\frac{1}{2}\) to 1.5 hp); and 233P (230 volt, \(\frac{1}{2}\) to 3 hp) are single-phase pump monitors used in a variety of applications to protect from dry-well, dead-head, jammed impeller, rapid-cycling, overvoltage, and undervoltage conditions.

Operation
A calibration adjustment allows the unit to be calibrated to your specific pumping applications, which reduces 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 conditions. When an abnormality, such as loss of suction, is detected, the product deactivates its output relay and directly disconnects the pump motor. The relay then begins its user-selectable restart delay (dry-well recovery) timer. When the timer counts to zero or power is removed and reapplied, the relay 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.

There are 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.

Features & Benefits

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

*Informer: A hand-held diagnostic tool that uses an infrared receiver to access information that can be helpful for troubleshooting the system.
Motor and Pump Protection Relays
233P Series

Applications
- Pumps: submersible, centrifugal, circulating, cooling, environmental
- Waterwells: residential, commercial, irrigation
- Golf course systems
- Sprinkler systems

Specifications

Functional Characteristics
Adjustments/Settings:
Overcurrent 125% of calibration point
Underload (dry-well) Adjustable (70 to 90% of calibrated run power)
Overvoltage 265VAC
Undervoltage 190VAC
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 230VAC
Load Range
233P-1.5 1/3 – 1.5 hp
233P 1/3 – 3 hp
Frequency 50/60Hz (Note: 50Hz will increase all delay timers by 20%)

Output Characteristics
Output Contact Rating-SPST
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 -40º to 55º C (-40º to 131º F)
Maximum Input Power 5 W
Wire Gauge Solid or Stranded 10 - 22AWG
Terminal Torque 13 in.-lbs.
Dimensions
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

Certification & Compliance

cULus Listed UL508, C22.2 No. 14

Accessories
Informer
A hand-held diagnostic tool that uses an infrared receiver to access information which can be helpful for troubleshooting the system.
Motor and Pump Protection Relays
233P Series

Ordering Information

<table>
<thead>
<tr>
<th>MODEL</th>
<th>LINE VOLTAGE</th>
<th>DESCRIPTION</th>
</tr>
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<tbody>
<tr>
<td>233P</td>
<td>230 V ac</td>
<td>Load Range: ⅛ - 3 hp</td>
</tr>
<tr>
<td>233P-ENCL</td>
<td>230 V ac</td>
<td>233P with NEMA3R enclosure</td>
</tr>
<tr>
<td>233P-1.5</td>
<td>230 V ac</td>
<td>Load Range: ⅛ - 1.5 hp</td>
</tr>
<tr>
<td>233P-1.5-ENCL</td>
<td>230 V ac</td>
<td>233P-1.5 with NEMA3R enclosure</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PART*</th>
<th>SIZE</th>
<th>CURRENT (A)</th>
<th>CT CURRENT RATIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT-0050-D10</td>
<td>5 - 7½ HP</td>
<td>27.5 - 42.1</td>
<td>50.5</td>
</tr>
<tr>
<td>CT-0075-D10</td>
<td>10 HP</td>
<td>51</td>
<td>75.5</td>
</tr>
<tr>
<td>CT-0100-D10</td>
<td>15 HP</td>
<td>75</td>
<td>100.5</td>
</tr>
</tbody>
</table>

* Current transformer sold separately

Dimensions Inches (mm)

![Dimensions Diagram]
Simplified Wiring Diagram

DISCLAIMER NOTICE – Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/product-disclaimer.