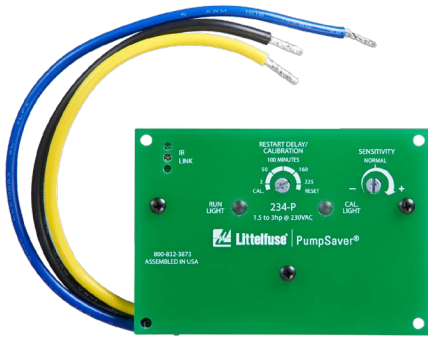


# Motor and Pump Protection Relays

## 234-P Series

### Single-Phase Pump Monitor



## Description

The PumpSaver® Plus Model 234-P protects single-phase pumps from dry-well, dead-head, rapid-cycle, jammed impellers, and over/undervoltage conditions. Typical applications include residential waterwells, commercial waterwells, irrigation wells, golf courses, and other sprinkler systems. The Model 234-P is designed to be mounted inside a Grundfos\* control box\*\* to protect 1/3–3 hp, 2- or 3-wire, 230 V pumps. An infrared LED communicates directly with a hand-held diagnostic tool called the Informer (sold separately).

A calibration adjustment allows the 234-P to be calibrated to your specific pumping applications, 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 234-P deactivates its output relay and directly disconnects the pump motor. The 234-P then begins its user-selectable restart delay (dry-well recovery) timer. When the timer counts to zero or power is removed and reapplied, the 234-P reactivates its output relay and turns the pump back on. By leaving the restart delay knob in the reset position, the 234-P will operate in manual reset mode.

The Informer displays parameters including calibration points, trip points, run time and last faults. An IR Kit-12 (12" fiber optic kit) allows the Informer to access these parameters even when the 234-P is enclosed in a control box. This is valuable for troubleshooting the pump while it is running.

NOTE: The PumpSaver® 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, increase the sensitivity closer to the 90 % mark, or if you have a very heavy producing well, decrease the sensitivity around the 70 % mark.

\* Grundfos is a trademark of its respective owner.

\*\*The Model 234-P is not recommended for use with the Grundfos Deluxe Control Box.

## Features & Benefits

FEATURES	BENEFITS
<b>Proprietary microcontroller-based circuitry</b>	Constant monitoring of voltage and current protects pumps from fault conditions
<b>Onboard sensitivity adjustment</b>	Allows user to adjust the current sensitivity for the dry-well/dead-head trip point from 70 %–90 % of the full load
<b>Adjustable restart delay</b>	Allows user to select well recovery time delay after a dry-well condition occurs, or to select manual reset
<b>Built-in IR communications link</b>	Used with the Informer, allows user to see stored faults, run time, and also troubleshoot the pump while it's running
<b>LED indication</b>	Provides status and diagnostics for troubleshooting

# Motor and Pump Protection Relays

## 234-P Series

### Applications

- Residential waterwells
- Commercial waterwells
- Irrigation wells
- Golf courses

### Specifications

#### Functional Specifications

##### Adjustments/Settings:

<b>Overcurrent</b>	125 % of calibration point
<b>Underload (dry-well)</b>	Adjustable (70–90 % of calibrated run power)
<b>Overvoltage</b>	265 V ac
<b>Undervoltage</b>	190 V ac
<b>Number of restarts allowed in a 60-sec. period (rapid-cycling)</b>	4
<b>Trip Delay Times:</b>	
<b>Overcurrent</b>	5 seconds
<b>Dry-well</b>	4 seconds
<b>Restart Delay Times:</b>	
<b>Over/undervoltage</b>	2 seconds
<b>All other faults (dry-well recovery timer)</b>	Manual, 2–225 Minutes

#### Input Characteristics

<b>Supply Voltage</b>	230 V ac
<b>Load Range</b>	1/8–3 hp
<b>Frequency</b>	50/60 Hz ( <i>Note: 50 Hz will increase all delay timers by 20 %</i> )

#### Output Characteristics

<b>Output Contact Rating-SPST</b>	3 hp @ 240 V ac (17 Amps max.)
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#### General Characteristics

<b>Operating Temperature</b>	-40 °C to 70 °C (-40 °F to 158 °F)
<b>Maximum Input Power</b>	5 W (max.)
<b>Dimensions</b>	Fitted to Grundfos* Control Box
<b>Weight</b>	14 oz.
<b>Mounting Methods</b>	Grundfos* Control Box
<b>Standards Passed</b>	
<b>Electrostatic Discharge (ESD)</b>	IEC 61000-4-2, Level 2, 4 kV contact, 6 kV air

### Accessories

#### Informer

A hand-held diagnostic tool that uses an infrared receiver to access information which can be helpful for troubleshooting the system. Includes the Informer IR Kit-12

#### Informer IR Kit-12

12" infrared adapter cable attaches to the face of the unit to provide remote diagnostics without opening the panel. Included with the Informer

# Motor and Pump Protection Relays

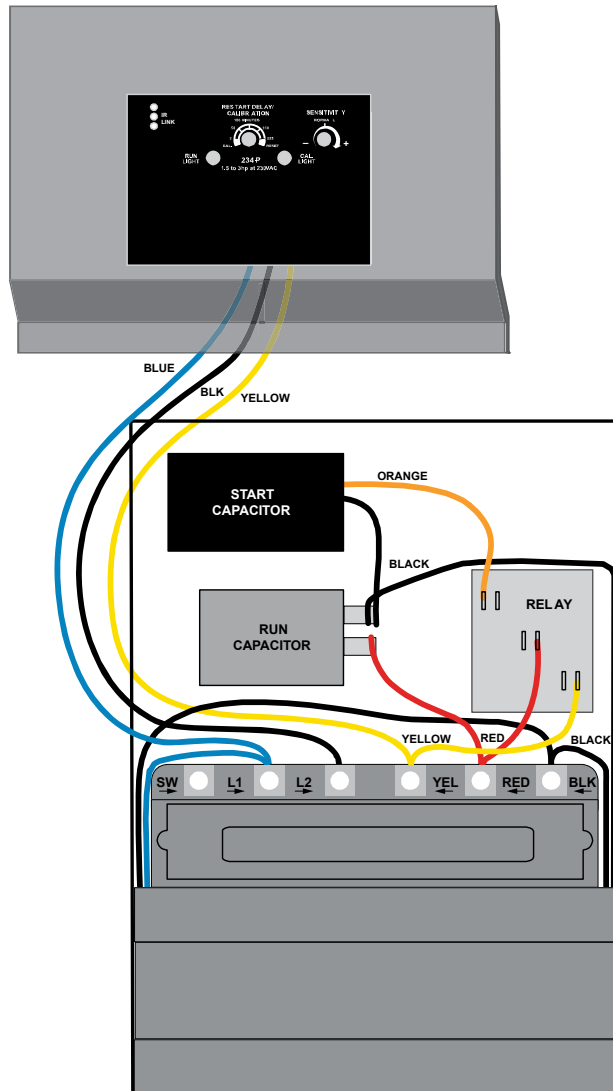
## 234-P Series

### Ordering Information

MODEL	LINE VOLTAGE	DESCRIPTION
234-P	230 V ac	Load range: 1/4 to 3 hp

### Wiring Diagram

234-P CONNECTIONS IN GRUNDFOS\* CONTROL BOX



For installation instructions see the Fresh Water Pumping Catalog.

**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](http://www.littelfuse.com/product-disclaimer).