

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

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Applications

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

Specifications

Functional Specifications

Adjustments/Settings:

Overcurrent	125 % of calibration point
Underload (dry-well)	Adjustable (70–90 % of calibrated run power)
Overvoltage	265 V ac
Undervoltage	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 (dry-well recovery timer)	Manual, 2–225 Minutes

Input Characteristics

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

Output Characteristics

Output Contact Rating-SPST	3 hp @ 240 V ac (17 Amps max.)
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General Characteristics

Operating Temperature	-40 °C to 70 °C (-40 °F to 158 °F)
Maximum Input Power	5 W (max.)
Dimensions	Fitted to Grundfos* Control Box
Weight	14 oz.
Mounting Methods	Grundfos* Control Box
Standards Passed	
Electrostatic Discharge (ESD)	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

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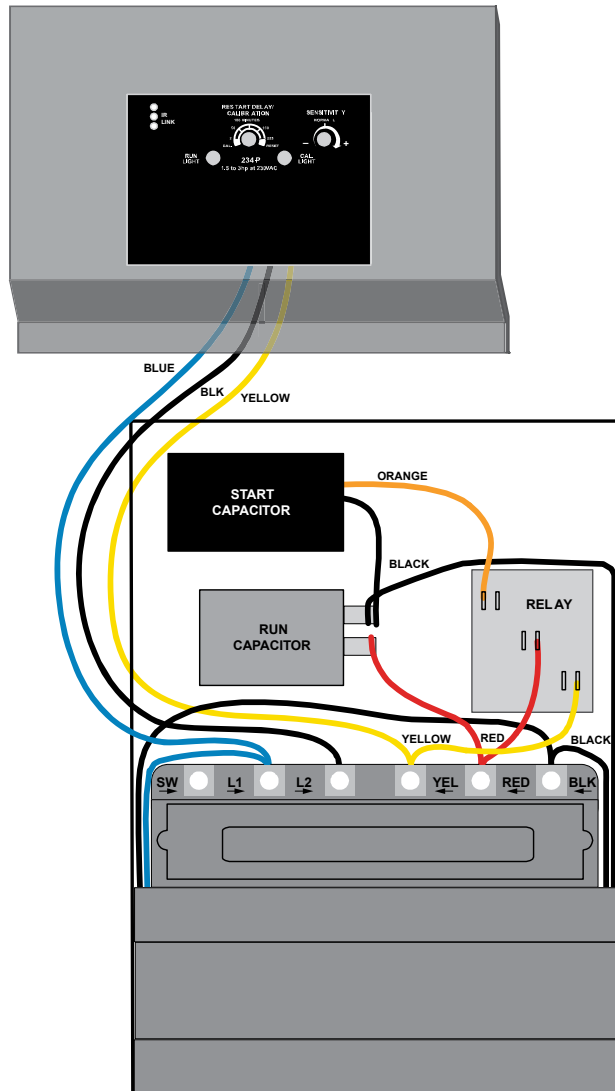
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Ordering Information

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.

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