# **Motor and Pump Protection Relays** 232-INSIDER

## Single-Phase Pump Monitor





### **Description**

The single-phase 232-Insider PumpSaver® fits inside ½, ½, ¾, and 1 hp, 230 V Grundfos control boxes. The PumpSaver 232-Insider is designed to protect single-phase pumps from dry-well, dead-head, jammed impellers, overvoltage, and undervoltage conditions. Typical applications include residential water wells, commercial water wells, irrigation wells, and golf course systems.

A calibration adjustment allows the 232-Insider to be calibrated to your specific pumping application, 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 232-Insider deactivates its output relay and directly disconnects the pump motor. The 232-Insider then begins its user-selectable restart delay (dry-well recovery) timer. When the timer counts to zero or power is removed and reapplied, the 232-Insider reactivates its output relay and turns the pump back on. By leaving the restart delay knob in the reset position, the 232-Insider will operate in manual reset mode. An infrared LED communicates directly with a hand-held diagnostic tool called the Informer\*.

Note: The use of flow restrictors or unusually high head pressures at the time of calibration may interfere with the detection of dead-head conditions.

#### **Features & Benefits**

FEATURES	BENEFITS	
Proprietary microcontroller-based circuitry	Constant monitoring of voltage and current status for maximum protection	
Adjustable restart delay	Allows user to select well recovery time delay after a dry-well condition n occurs, or to select manual reset	
Built-in IR communications link	Used with the Informer, allows user to see stored faults, run time, and troubleshoot while the pump is running	
LED indication	Provides status and diagnostics for troubleshooting	

#### **Applications**

- Residential and commercial water wells
- Irrigation wells
- Golf course systems



<sup>\*</sup>The Informer: a hand-held diagnostic tool that uses an infrared receiver to access information that can be helpful for troubleshooting the system (sold separately).

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### **Specifications**

### **Functional Characteristics**

**1 Phase Line Voltage (±10 %)** 230 V ac **Load Range**  $\frac{1}{2}$  1 hp **Frequency** 50\*/60 Hz

**Operating Points** 

**Overload** 125 % of Cal. Point

Underload (dry well) 80 % or 87 % of calibrated run power

High Voltage Reset Point265Low Voltage Reset Point190Trip Delay Time (Overload)5 sec.Trip Delay Time (Dry well)4 sec.

**Restart Delay Time** 

Overvoltage/Undervoltage Delay 2 sec.

All other faults (dry-well rec. timer) Manual, 2–225 min.

Output Contact Rating (SPST) 1 hp @ 240 V ac (17 amps max.)

Weight 10 oz.

**Power Consumption** 5 Watts (max.)

## **Certification & Compliance**

#### **Accessories**

#### Informer

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

## **Ordering Information**

MODEL	VOLTAGE	DESCRIPTION	MOUNTING METHOD
232-Insider	230 V ac	1/3–1 hp	Inside a Grundfos® control box

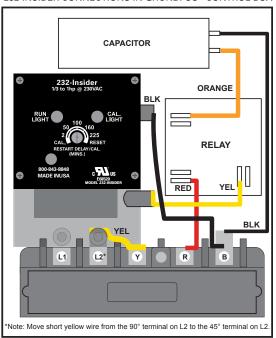


<sup>\*</sup>Note: 50 Hz will increase all delay timers by 20 %

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## **Simplified Wiring Diagram**

232-INSIDER CONNECTIONS IN GRUNDFOS\* CONTROL BOX



For installation instructions see the Fresh Water Pumping Catalog.

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