

# Motor and Pump Protection Relays

## 232-INSIDER

### Single-Phase Pump Monitor



## Description

The single-phase 232-Insider PumpSaver® fits inside 1/3, 1/2, 3/4, 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.

\*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).

## Features & Benefits

FEATURES	BENEFITS
<b>Proprietary microcontroller-based circuitry</b>	Constant monitoring of voltage and current status for maximum protection
<b>Adjustable restart delay</b>	Allows user to select well recovery time delay after a dry-well condition n 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 troubleshoot while the pump is running
<b>LED indication</b>	Provides status and diagnostics for troubleshooting

## Applications

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

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### Specifications

#### Functional Characteristics

<b>1 Phase Line Voltage (<math>\pm 10\%</math>)</b>	230 V ac
<b>Load Range</b>	$\frac{1}{3}$ –1 hp
<b>Frequency</b>	50*/60 Hz

#### Operating Points

<b>Overload</b>	125 % of Cal. Point
<b>Underload (dry well)</b>	80 % or 87 % of calibrated run power
<b>High Voltage Reset Point</b>	265
<b>Low Voltage Reset Point</b>	190
<b>Trip Delay Time (Overload)</b>	5 sec.
<b>Trip Delay Time (Dry well)</b>	4 sec.

#### Restart Delay Time

<b>Overvoltage/Undervoltage Delay</b>	2 sec.
<b>All other faults (dry-well rec. timer)</b>	Manual, 2–225 min.
<b>Output Contact Rating (SPST)</b>	1 hp @ 240 V ac (17 amps max.)
<b>Weight</b>	10 oz.
<b>Power Consumption</b>	5 Watts (max.)

\*Note: 50 Hz will increase all delay timers by 20 %

### Certification & Compliance

cULus	UL 508
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### 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

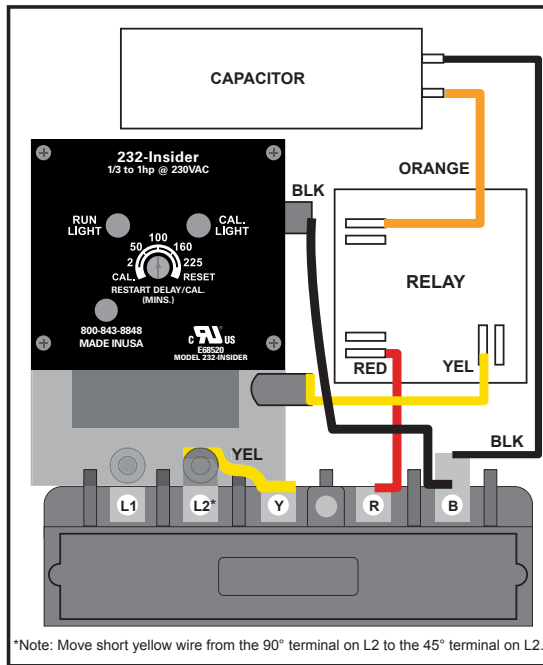
MODEL	VOLTAGE	DESCRIPTION	MOUNTING METHOD
232-Insider	230 V ac	1/3–1 hp	Inside a Grundfos® control box

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## 232-INSIDER

### Simplified Wiring Diagram

232-INSIDER CONNECTIONS IN GRUNDFOS\* CONTROL BOX



For installation instructions see the Fresh Water Pumping Catalog.

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