

Single-Phase PumpSavers

Our line of single-phase PumpSavers provide ideal protection from dry-well and dead-head situations, as well as overload, over and undervoltages and rapid cycling. The 77C-KW/HP family of power monitors provide this same protection and much more with programmable parameters, diagnostic display of fault codes to aid in troubleshooting and remote communication capability.

SEE OUR SINGLE-PHASE PUMPSAVER CATALOG FOR OUR
FULL LINE OF SINGLE-PHASE PUMPSAVERS
(AVAILABILITY SUBJECT TO CHANGE).

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Features

UL listed as an overload relay.

15 parameters can be programmed for maximum protection.

Digitally programmable for precise customization.

Last fault memory provides instant troubleshooting diagnostics.

Recordable voltage, current, last four faults, KWh usage, and power factor with communications package.

Compact design saves precious panel space.



PumpSaver
SUBMERSIBLE
PUMP PROTECTOR

77C-KW/HP
77C-LR-KW/HP

Overload Relay

Engineered
Protection

The Model 77C-KW/HP has important advantages over current monitors in many protection applications. Any motor load that has a small or very non-linear change in current vs. load requires the use of a power monitor for underload, dry run and dead-head protection. The change in power vs. load is more linear for most motor loads and is greater in magnitude than the change in current in all motor loads. This is because power measurements take into account both power factor (pf) and current.

Small motors, those under 3 hp and especially fractional horsepower, exhibit small changes in current vs. load, but the change in power is large. When larger motors are derated (run below their rated horsepower) the change in current is small vs. load, but again, the change in power is large and linear. Other typical applications include slower speed mixer or agitator motors up to 50 hp and beyond. These motors and others that run slower than around 3400 rpm usually have small current changes vs. load.

Magdrive and can pumps tend to be small horsepower, positive displacement-type pumps. These pumps need the high sensitivity of a power monitor to protect them from dry run using the underpower feature and dead-head conditions using the underpower feature if the motor decouples from the pump, and the overpower feature if the motor does not decouple.

The built-in UL Listed/CSA approved overload, current unbalance, reverse phase, single-phase and other protection features are significant benefits over similar products. The Modbus communications capability allows this device to be directly integrated with the SymCom RM-1000 and RM-2000 remote displays or other remote monitoring and control equipment.

Protects Single-Phase motors from:

- Overload
- Underload
- Jams
- Low voltage
- High voltage
- Rapid cycling

Additional Features:

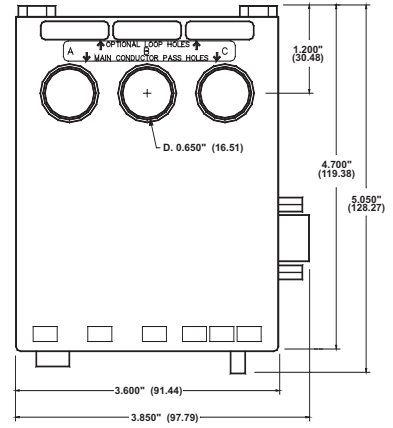
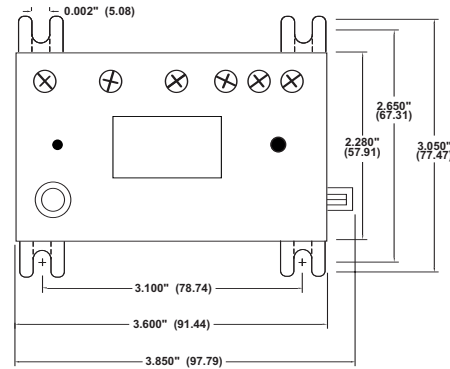
- Fully programmable
- CSA approved
- CE compliant
- UL and cUL listed
- Automatic or manual reset
- Tamper guard
- RS485 communication port (with pn RS485MS-2W)
- Remote reset
- Surface and DIN rail mount
- Alphanumeric LED diagnostic display
- Last fault memory
- 5-year warranty
- Made in USA

Pumpsaver®

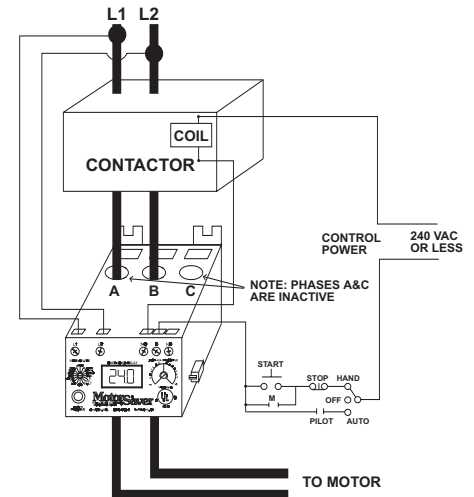
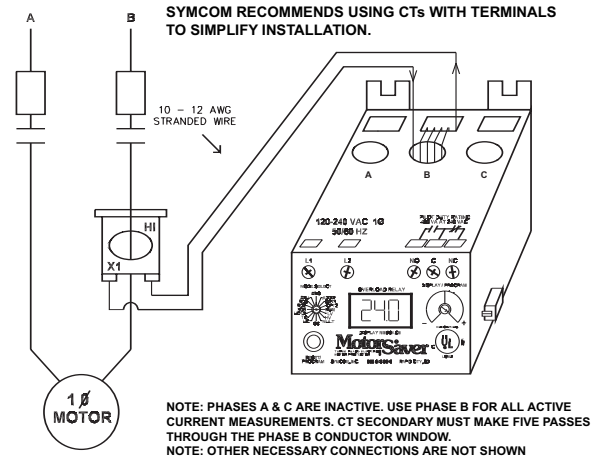
SUBMERSIBLE PUMP PROTECTOR

Specifications
•
Operating Points
•
Special Options

77C-KW/HP & 77C-LR-KW/HP Overload Relay



SPECIFICATIONS	OVERLOAD RELAY
Electrical	
Input Voltage	100-240 VAC, 1Ø
Frequency	50-60 Hz
Motor Full Load Amp Range - 77C-KW/HP	2-25 Amps, 3Ø(Loops Required) 26-90 Amps, 3Ø(Direct) 91-800 Amps, 3Ø(External CT's)
Motor Full Load Amp Range - 77C-LR-KW/HP	1.0 Amps - 2.5 Amps (1 Loop) 2.0 Amps - 9.0 Amps (Direct)
Short Circuit Withstand Rating	100kA per UL and CSA
Power Consumption	5W (Maximum)
Output Contact Rating SPDT (Form C)	Pilot duty rating: 480 VA @ 240 VAC General purpose: 10A @ 240 VAC
Expected Life	
Mechanical	1 x 10 ⁷ operations
Electrical	1 x 10 ⁷ operations at rated load
Accuracy at 25° C (77° F)	
Voltage	±1%
Current	±3% (Direct, No External CT's)
Timing	5% ± 1 second
Repeatability	
Voltage	± 0.5% of nominal voltage
Current	± 1% (Direct, No External CT's)
Safety Marks	
UL	UL508, UL1053
CE	IEC 60947-1, IEC 60947-5-1
Standards Passed	
Electrostatic Discharge (ESD)	IEC 1000-4-2, Level 3, 6kv contact, 8kv air
Radio Frequency Immunity (RFI), Conducted	IEC 1000-4-6, Level 3 10V/m
Radio Frequency Immunity (RFI), Radiated	IEC 1000-4-3, Level 3 10V/m
Fast Transient Burst	IEC 1000-4-4, Level 3, 3.5 kv input power
Surge	
IEC	1000-4-5 Level 3, 2kv line-to-line; Level 4, 4kv line-to-ground
ANSI/IEEE	C82.41 Surge and Ring Wave Compliance to a level of 6kv line-to-line Meets UL508 (2 x rated V +1000V for 1 minute)
Hi-potential Test	
Vibration	IEC 68-2-6, 10-55Hz, 1mm peak-to-peak, 2 hours, 3 axis
Shock	IEC 68-2-27, 30g, 3 axis, 11ms duration, half-sine pulse
Mechanical	
Dimensions	3.1\"/>
Terminal Torque	7 inch•lb
Enclosure Material	polycarbonate
Weight	1.2 lbs
Maximum Conductor Size Through 777	0.85\"/>
Environmental	
Temperature Range	Ambient Operating: -20° - 70° C (-40° - 158°F) Ambient Storage: -40° - 80° C (-40° - 176°F)
Pollution Degree	3
Class of Protection	IP20, NEMA 1
Relative Humidity	10-95%, non-condensing per IEC 68-2-3
Programmable Operating Points	
LV- Low Voltage Threshold	85V - HV Setting
HV- High Voltage Threshold	LV Setting - 264V
MULT- # of Conductors or CT Ratio (XXX:5)	77C: 1-10 Conductors or 100-800 Ratio 77C-LR: 1 or 2 (20-100A) + MULT or 80-120% of CT Primary
OC- Overcurrent Threshold	2 - 25% or 999
CUB- Current Unbalance Threshold	5, J5, 10, J10, 15, J15, 20, J20, 30, J30, or Lin (linear)
TC- Overcurrent Trip Class *	0, 2 - 500 Minutes/Seconds
RD1- Rapid Cycle Timer	2 - 500 Minutes/Seconds
RD2- Restart Delay After All Faults Except Undercurrent (motor cool down timer)**	2 - 500 Minutes/Seconds
RD3- Restart Delay After Undercurrent (dry well recovery timer)	2 - 500 Minutes/Seconds
#RU- Number of Restarts After Undercurrent	0, 1, 2, 3, 4, A(Automatic)
ADDR- RS485 Address	A01- A99
#RO-Number of Restarts After Overcurrent	0, 1, 2, 3, 4, A(Automatic)
LP/PWS (PWS = LP Range)	1 = 0.01 - 0.99 KW 5 = 0.01 - 0.99 HP 2 = 1.00 - 9.95 KW 6 = 1.00 - 9.95 HP 3 = 10.0 - 99.5 KW 8 = 10.0 - 99.5 HP 4 = 100 - 650 KW 9 = 100 - 650 HP



* If J Prefix is displayed in trip class setting, jam protection is enabled. If programmed to Lin position, overcurrent trip delays are fixed linear-type delays set in OPT1 position.
** RD2 & RD3 can be changed from minutes to seconds under program position OPT2.

SETTING	RD2	RD3
0	Minutes	Minutes
1	Minutes	Seconds
2	Minutes	Minutes
3	Seconds	Seconds

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Features

UL listed as an overload relay.

15 parameters can be programmed for maximum protection.

Digitally programmable for precise customization.

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Recordable voltage, current, last four faults, KWh usage, and power factor with communications package.

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PUMP PROTECTOR

77C-KW/HP
77C-LR-KW/HP

Overload Relay

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Protection

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The built-in UL Listed/CSA approved overload, current unbalance, reverse phase, single-phase and other protection features are significant benefits over similar products. The Modbus communications capability allows this device to be directly integrated with the SymCom RM-1000 and RM-2000 remote displays or other remote monitoring and control equipment.

**Protects Single-Phase
motors from:**

- Overload
- Underload
- Jams
- Low voltage
- High voltage
- Rapid cycling

Additional Features:

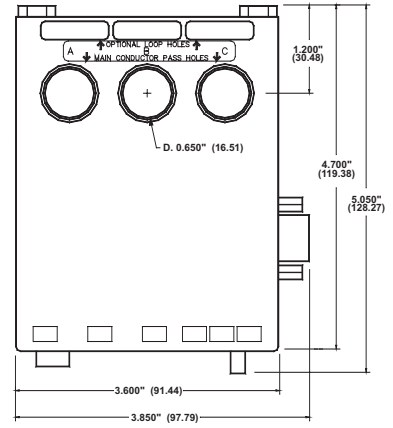
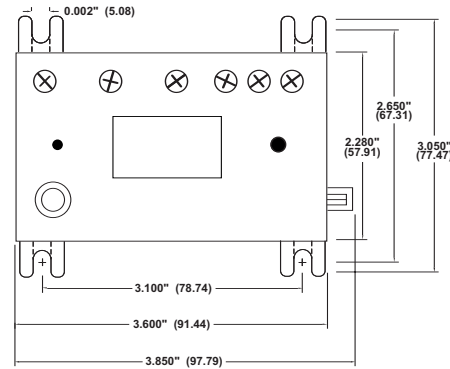
- Fully programmable
- CSA approved
- CE compliant
- UL and cUL listed
- Automatic or manual reset
- Tamper guard
- RS485 communication port (with pn RS485MS-2W)
- Remote reset
- Surface and DIN rail mount
- Alphanumeric LED diagnostic display
- Last fault memory
- 5-year warranty
- Made in USA

Pumpsaver®

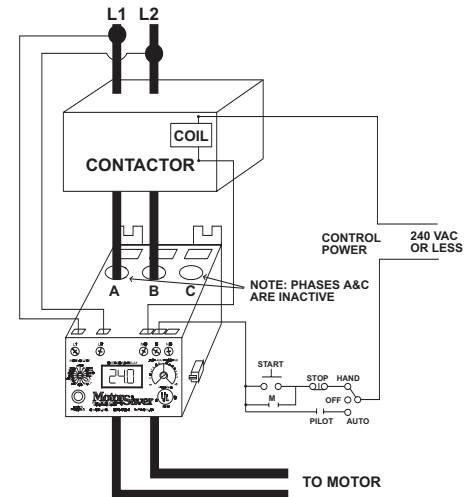
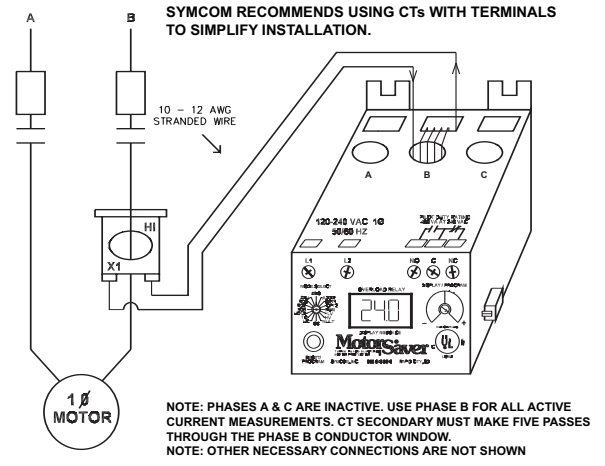
SUBMERSIBLE PUMP PROTECTOR

Specifications
•
Operating Points
•
Special Options

77C-KW/HP & 77C-LR-KW/HP Overload Relay



SPECIFICATIONS	OVERLOAD RELAY
Electrical	
Input Voltage	100-240 VAC, 1Ø
Frequency	50-60 Hz
Motor Full Load Amp Range - 77C-KW/HP	2-25 Amps, 3Ø(Loops Required) 26-90 Amps, 3Ø(Direct) 91-800 Amps, 3Ø(External CT's)
Motor Full Load Amp Range - 77C-LR-KW/HP	1.0 Amps - 2.5 Amps (1 Loop) 2.0 Amps - 9.0 Amps (Direct)
Short Circuit Withstand Rating	100kA per UL and CSA
Power Consumption	5W (Maximum)
Output Contact Rating SPDT (Form C)	Pilot duty rating: 480 VA @ 240 VAC General purpose: 10A @ 240 VAC
Expected Life	
Mechanical	1 x 10 ⁶ operations
Electrical	1 x 10 ⁶ operations at rated load
Accuracy at 25° C (77° F)	
Voltage	±1%
Current	±3% (Direct, No External CT's)
Timing	5% ± 1 second
Repeatability	
Voltage	± 0.5% of nominal voltage
Current	± 1% (Direct, No External CT's)
Safety Marks	
UL	UL508, UL1053
CE	IEC 60947-1, IEC 60947-5-1
Standards Passed	
Electrostatic Discharge (ESD)	IEC 1000-4-2, Level 3, 6kv contact, 8kv air
Radio Frequency Immunity (RFI), Conducted	IEC 1000-4-6, Level 3 10V/m
Radio Frequency Immunity (RFI), Radiated	IEC 1000-4-3, Level 3 10V/m
Fast Transient Burst	IEC 1000-4-4, Level 3, 3.5 kv input power
Surge	
IEC	1000-4-5 Level 3, 2kv line-to-line; Level 4, 4kv line-to-ground
ANSI/IEEE	C82.41 Surge and Ring Wave Compliance to a level of 6kv line-to-line Meets UL508 (2 x rated V +1000V for 1 minute)
Hi-potential Test	
Vibration	IEC 68-2-6, 10-55Hz, 1mm peak-to-peak, 2 hours, 3 axis
Shock	IEC 68-2-27, 30g, 3 axis, 11ms duration, half-sine pulse
Mechanical	
Dimensions	3.1\"/>
Terminal Torque	7 inch•lb
Enclosure Material	polycarbonate
Weight	1.2 lbs
Maximum Conductor Size Through 777	0.85\"/>
Environmental	
Temperature Range	Ambient Operating: -20° - 70° C (-40° - 158°F) Ambient Storage: -40° - 80° C (-40° - 176°F)
Pollution Degree	3
Class of Protection	IP20, NEMA 1
Relative Humidity	10-95%, non-condensing per IEC 68-2-3
Programmable Operating Points	
Range	
LV- Low Voltage Threshold	85V - HV Setting
HV- High Voltage Threshold	LV Setting - 264V
MULT- # of Conductors or CT Ratio (XXX:5)	77C: 1-10 Conductors or 100-800 Ratio 77C-LR: 1 or 2 (20-100A) + MULT or 80-120% of CT Primary
OC- Overcurrent Threshold	2 - 25% or 999
CUB- Current Unbalance Threshold	5, J5, 10, J10, 15, J15, 20, J20, 30, J30, or Lin (linear)
TC- Overcurrent Trip Class *	0, 2 - 500 Minutes/Seconds
RD1- Rapid Cycle Timer	2 - 500 Minutes/Seconds
RD2- Restart Delay After All Faults Except Undercurrent (motor cool down timer)**	2 - 500 Minutes/Seconds
RD3- Restart Delay After Undercurrent (dry well recovery timer)	2 - 500 Minutes/Seconds
#RU- Number of Restarts After Undercurrent	0, 1, 2, 3, 4, A(Automatic)
ADDR- RS485 Address	A01- A99
#RO-Number of Restarts After Overcurrent	0, 1, 2, 3, 4, A(Automatic)
LP/PWS (PWS = LP Range)	1 = 0.01 - 0.99 KW 5 = 0.01 - 0.99 HP 2 = 1.00 - 9.95 KW 6 = 1.00 - 9.95 HP 3 = 10.0 - 99.5 KW 8 = 10.0 - 99.5 HP 4 = 100 - 650 KW 9 = 100 - 650 HP



* If J Prefix is displayed in trip class setting, jam protection is enabled. If programmed to Lin position, overcurrent trip delays are fixed linear-time delays set in OPT1 position.
** RD2 & RD3 can be changed from minutes to seconds under program position OPT2.

SETTING	RD2	RD3
0	Minutes	Minutes
1	Minutes	Seconds
2	Minutes	Minutes
3	Seconds	Seconds

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Single-Phase PumpSaver®Plus

Model 111-Insider-P



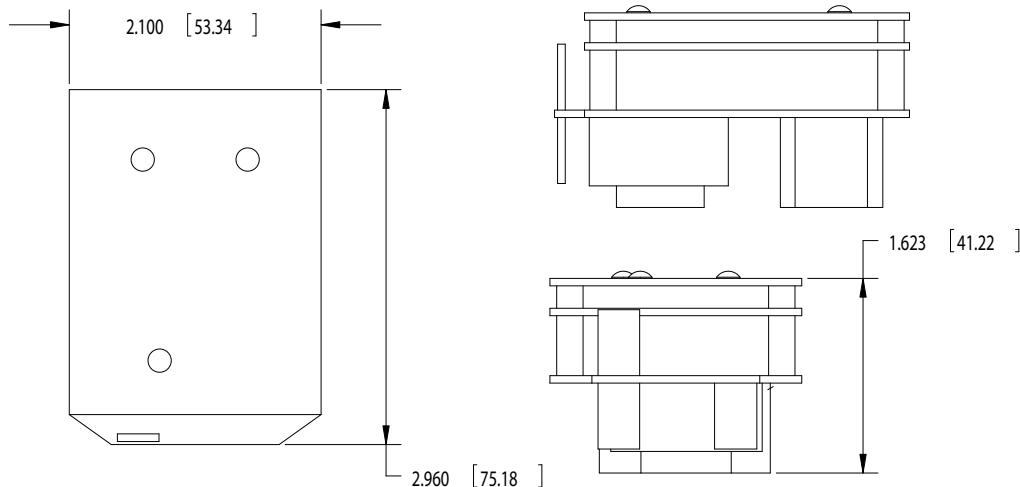
Picture may not be representative of actual product.

The Model 111-Insider-P single-phase PumpSaver®Plus fits inside 1/3 and 1/2 hp 115V control boxes. The PumpSaver®Plus Model 111-Insider-P is designed to protect single-phase pumps from dry well, dead head, jammed impeller and over and undervoltage conditions.

A calibration adjustment allows the Insider-P to be calibrated to your specific pumping applications, thereby 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 PumpSaver®Plus deactivates its output relay and directly disconnects the pump motor. The PumpSaver®Plus then begins its user-selectable restart delay (dry-well recovery) timer. When the timer counts down to zero or power is removed and re-applied, the PumpSaver®Plus reactivates its output relay, allowing the pump to turn back on.

The 111-Insider-P communicates with a hand-held diagnostics tool called the Informer (sold separately). The Informer displays 15 parameters including calibration points, trip points, running points, and last faults. An IR Kit-12 (12" fiber optic kit) is included with each 111-Insider-P, allowing the Informer to access these parameters even when the 111-Insider-P is enclosed in a control box. This is valuable for troubleshooting the pump while it is running.

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



Specifications

Functional Specifications	
Adjustments/Settings	
Overcurrent	125% of calibration point
Underload (dry-well)	Adjustable (70 to 90% of calibrated run power)
Overvoltage	132.5VAC
Undervoltage	95VAC
Number of restarts allowed in a 60-second 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	115VAC
Load Range	1/3 - 1/2 hp
Frequency	50/60Hz (Note: 50Hz will increase all delay timers by 20%)
Output Characteristics	
Output Contact Rating-SPST	1/2hp@120VAC (17 amps max.)
General Characteristics	
Operating Temperature	-40° to 55° C (-40° to 131° F)
Maximum Input Power	5 W
Standards Passed	
Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 2, 4kV contact, 6kV air
Surge Immunity	IEC 61000-4-5, Level 4, 4kV line-to-line and line-to-ground
Safety Marks	
cUR*	UL508, C22.2 No. 14
Weight	10 oz.
Mounting Methods	Inside a Franklin™, Pentek™, or CentriPro™ control box

* The 111-Insider-P is approved by UL for use in the Franklin™, Pentek™ and CentriPro™ type 3R control boxes when installed properly. It is not intended to provide overload protection and should be used with thermally or impedance protected motors only.

How to order:

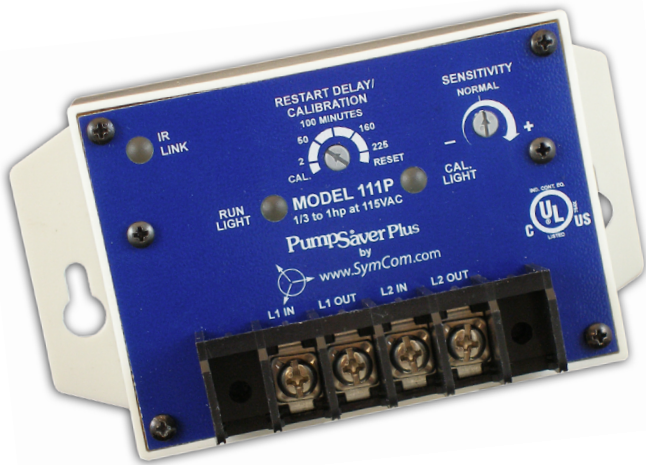
Part Number: 111-Insider-P



(605) 348.5580 / (800) 843.8848 / Fax (605) 348.5685
 customerservice@symcom.com / technicalsupport@symcom.com

Single-Phase PumpSaver®Plus

Model 111P



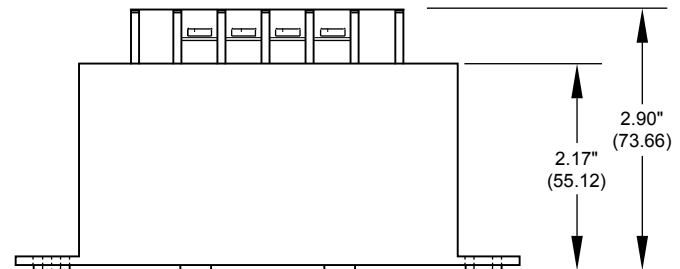
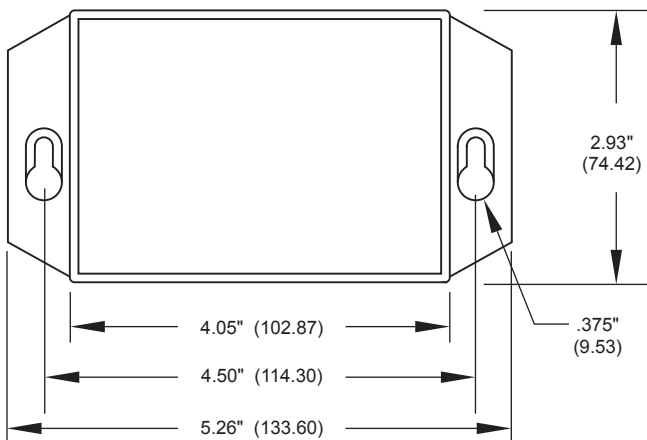
The Model 111P single-phase PumpSaver®Plus is a pump monitor designed to protect single-phase pumps from dry-well, dead-head, jammed impeller, rapid cycle and overvoltage and undervoltage conditions. The PumpSaver®Plus Model 111P protects 115 volt, 2 or 3 wire, 1/3 to 1 hp pumps.

A calibration adjustment allows the Model 111P to be calibrated to your specific pumping applications, thereby reducing the possibility of false or nuisance tripping. A proprietary microcontroller based voltage, power factor and current-sensing circuit constantly monitors for power fluctuations, overcurrent and underload conditions. When an abnormality, such as loss of suction, is detected, the PumpSaver®Plus deactivates its output relay and directly disconnects the pump motor. The PumpSaver®Plus then begins its user-selectable "Restart Delay" (dry-well recovery) timer. When the timer expires or power is removed and reapplied, the PumpSaver®Plus reactivates its output relay, allowing the pump to turn back on.

Picture may not be representative of actual product.

An infrared LED communicates directly with a hand-held diagnostic tool called the Informer (sold separately).

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



Specifications

Functional Specifications	
Adjustments/Settings	
Overcurrent	125% of calibration point
Underload (dry-well)	Adjustable (70 to 90% of calibrated run power)
Overvoltage	132.5VAC
Undervoltage	95VAC
Number of restarts allowed in a 60-second 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	115VAC
Load Range	$\frac{1}{3}$ - 1 hp
Frequency	50/60Hz (note: 50Hz will increase all delay timers by 20%)
Output Characteristics	
Output Contact Rating-SPST	1hp@115VAC (16 amps max.)
General Characteristics	
Operating Temperature	-40° to 55° C (-40° to 131° F)
Maximum Input Power	5 W
Wire Gauge	Solid or Stranded 10 - 22AWG
Terminal Torque	13 in.-lbs.
Standards Passed	
Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 2, 4kV contact, 6kV air
Surge Immunity	IEC 61000-4-5, Level 4, 4kV line-to-line and line-to-ground
Safety Marks	
cUL Listed	UL508, C22.2 No. 14
Dimensions	5.26" W x 2.93" H x 2.90" D
Weight	14 oz.
Mounting Methods	#8 screws

How to order:

Part Number: 111P

111P-ENCL (for more information see spec sheet for ENCL enclosure)



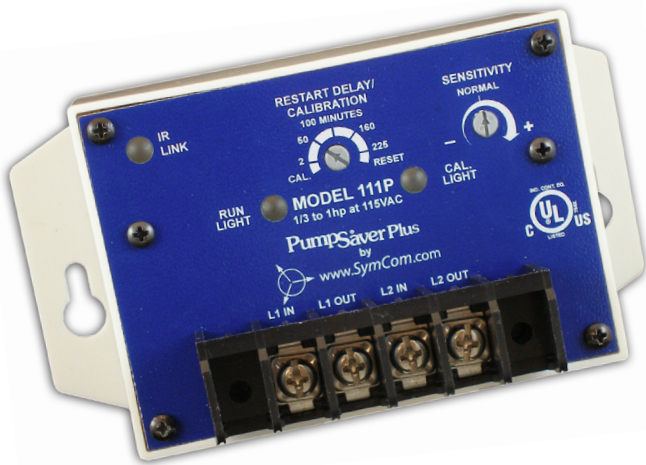
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 customerservice@symcom.com / technicalsupport@symcom.com

Single-Phase PumpSaver®Plus

Model 111P



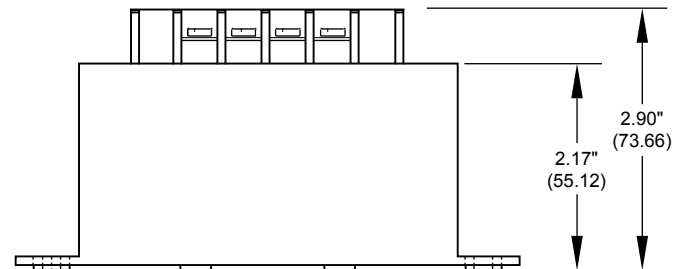
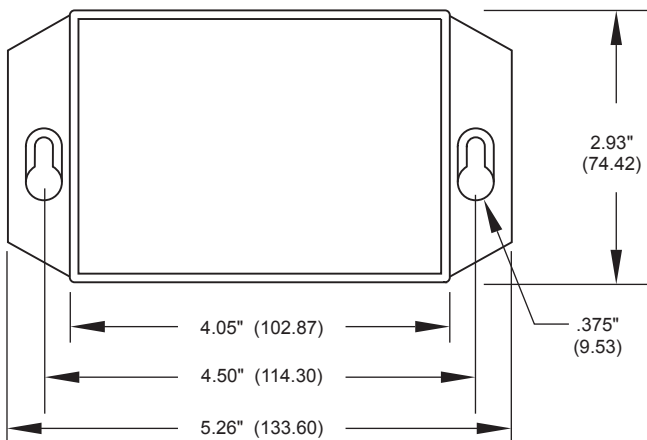
The Model 111P single-phase PumpSaver®Plus is a pump monitor designed to protect single-phase pumps from dry-well, dead-head, jammed impeller, rapid cycle and overvoltage and undervoltage conditions. The PumpSaver®Plus Model 111P protects 115 volt, 2 or 3 wire, 1/3 to 1 hp pumps.

A calibration adjustment allows the Model 111P to be calibrated to your specific pumping applications, thereby reducing the possibility of false or nuisance tripping. A proprietary microcontroller based voltage, power factor and current-sensing circuit constantly monitors for power fluctuations, overcurrent and underload conditions. When an abnormality, such as loss of suction, is detected, the PumpSaver®Plus deactivates its output relay and directly disconnects the pump motor. The PumpSaver®Plus then begins its user-selectable "Restart Delay" (dry-well recovery) timer. When the timer expires or power is removed and reapplied, the PumpSaver®Plus reactivates its output relay, allowing the pump to turn back on.

An infrared LED communicates directly with a hand-held diagnostic tool called the Informer (sold separately).

Picture may not be representative of actual product.

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



Specifications

Functional Specifications	
Adjustments/Settings	
Overcurrent	125% of calibration point
Underload (dry-well)	Adjustable (70 to 90% of calibrated run power)
Overvoltage	132.5VAC
Undervoltage	95VAC
Number of restarts allowed in a 60-second 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	115VAC
Load Range	1/3 - 1 hp
Frequency	50/60Hz (note: 50Hz will increase all delay timers by 20%)
Output Characteristics	
Output Contact Rating-SPST	1hp@115VAC (16 amps max.)
General Characteristics	
Operating Temperature	-40° to 55° C (-40° to 131° F)
Maximum Input Power	5 W
Wire Gauge	Solid or Stranded 10 - 22AWG
Terminal Torque	13 in.-lbs.
Standards Passed	
Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 2, 4kV contact, 6kV air
Surge Immunity	IEC 61000-4-5, Level 4, 4kV line-to-line and line-to-ground
Safety Marks	
cUL Listed	UL508, C22.2 No. 14
Dimensions	5.26" W x 2.93" H x 2.90" D
Weight	14 oz.
Mounting Methods	#8 screws

How to order:

Part Number: 111P

111P-ENCL (for more information see spec sheet for ENCL enclosure)



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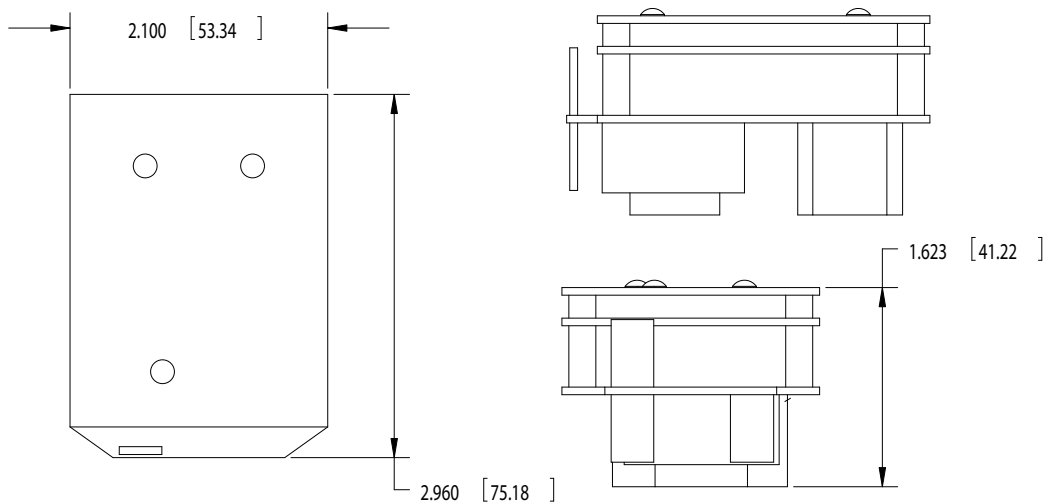
Picture may not be representative of actual product.

SymCom's Model 231-Insider-P single-phase PumpSaver®Plus fits inside 1/3, 1/2, 3/4, and 1hp 230V control boxes and is designed to protect single-phase pumps from dry-well, dead-head, jammed impeller, rapid-cycle, overvoltage, and undervoltage conditions.

A calibration adjustment allows the Insider-P to be calibrated to specific pumping applications, thereby reducing the possibility of false or nuisance tripping. A unique microcontroller-based voltage and current-sensing algorithm constantly monitors the incoming power for fluctuations. When an abnormality, such as a loss of load is detected, the PumpSaver®Plus deactivates its output relay directly disconnecting the pump motor. The PumpSaver®Plus then begins its user-selectable restart delay (dry-well recovery) timer. When the timer counts down to zero or power is removed and reapplied, the PumpSaver®Plus reactivates its output relay, allowing the pump to turn back on.

The 231-Insider-P communicates with a hand-held diagnostics tool called the Informer (sold separately). The Informer displays 15 parameters including calibration points, trip points, running points, and last faults. An IR Kit-12 (12" fiber optic kit) is included with each 231-Insider-P, allowing the Informer to access these parameters even when the 231-Insider-P is enclosed in a control box. This is valuable for troubleshooting the pump while it is running.

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



Specifications

Functional Specifications	
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	1/3 - 1 hp
Frequency	50/60Hz (Note: 50Hz will increase all delay timers by 20%)
Output Characteristics	
Output Contact Rating-SPST	1hp @ 240VAC (17 amps max.)
General Characteristics	
Operating Temperature	-40° to 55° C (-40° to 131° F)
Maximum Input Power	5 W
Standards Passed	
Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 2, 4kV contact, 6kV air
Surge Immunity	IEC 61000-4-5, Level 4, 4kV line-to-line and line-to-ground
Safety Marks	
cUR*	UL508, C22.2 No. 14
Weight	10 oz.
Mounting Methods	Inside a Franklin™, Pentek™, or CentriPro™ control box

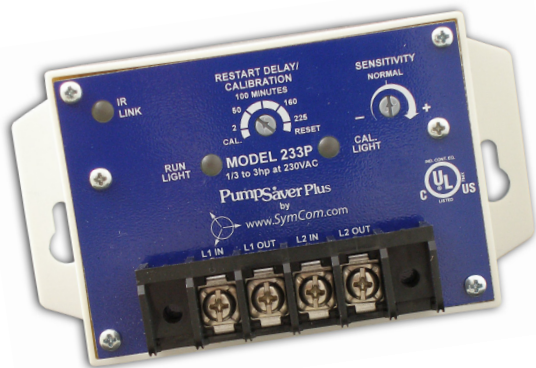
* The 231-Insider-P is approved by UL for use in the Franklin™, Pentek™ and CentriPro™ type 3R control boxes when installed properly. It is not intended to provide overload protection and should be used with thermally or impedance protected motors only.

How to order:

Part Number: 231-Insider-P



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Picture may not be representative of actual product.

The Model 233P single-phase PumpSaver®Plus is a pump monitor designed to protect single-phase pumps from dry-well, dead-head, jammed impeller, rapid cycle, overvoltage and undervoltage conditions. The PumpSaver®Plus Model 233P protects 230 volt, 2 or 3 wire, 1/3 to 3 hp pumps.

A calibration adjustment allows the Model 233P to be calibrated to your specific pumping applications, thereby reducing the possibility of false or nuisance tripping. A proprietary microcontroller based voltage, power factor and current-sensing circuit constantly monitors for power fluctuations, overcurrent and underload conditions. When an abnormality, such as loss of suction, is detected, the PumpSaver®Plus deactivates its output relay and directly disconnects the pump motor. The PumpSaver®Plus then begins its user-selectable "Restart Delay" (dry-well recovery) timer. When the timer expires or power is removed and reapplied, the PumpSaver®Plus reactivates its output relay and allows the pump to turn back on.

An infrared LED communicates directly with a hand-held diagnostic tool called the Informer (sold separately).

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

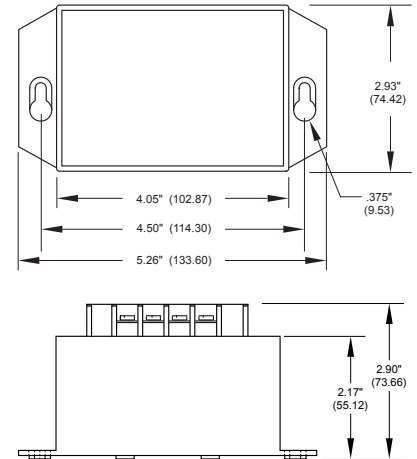
Features:

- Protects single-phase pumps from:
 - Dry well
 - Flow restrictions (dead head)
 - Overcurrent (jammed impeller)
 - Overvoltage
 - Undervoltage
 - Rapid cycling
- Ideal for submersible pumps
- State-of-the-art pump protection
- Infrared LED communication to SymCom's Informer
- UL Listed
- 5-year warranty
- Made in USA

Specifications

Functional Specifications	
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-second 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	1.5hp@240VAC (10 amps max.)
233P	3hp@240VAC (17 amps max.)
General Characteristics	
Operating Temperature	-40° to 55° C (-40° to 131° F)
Maximum Input Power	5 W
Wire Gauge	Solid or Stranded 10 - 22AWG
Terminal Torque	13 in.-lbs.
Standards Passed	
Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 2, 4kV contact, 6kV air
Surge Immunity	IEC 61000-4-5, Level 4, 4kV line-to-line and line-to-ground
Safety Marks	
cUL Listed	UL508, C22.2 No. 14
Dimensions	5.26" W x 2.93" H x 2.90" D
Weight	14 oz.
Mounting Methods	#8 screws

Enclosure Dimensions



How to order:

Part Number: 233P-1.5

233P-1.5-ENCL (for more information see spec sheet for ENCL enclosure)

233P

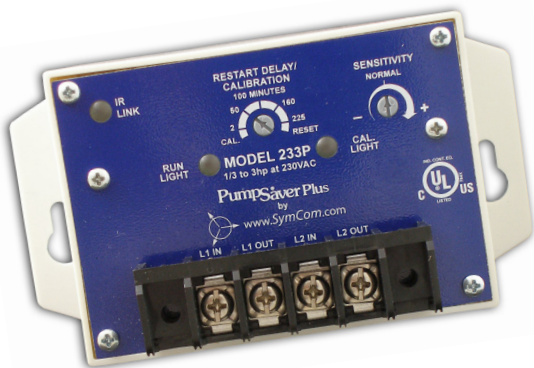
233P-ENCL (for more information see spec sheet for ENCL enclosure)



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The Model 233P single-phase PumpSaver®Plus is a pump monitor designed to protect single-phase pumps from dry-well, dead-head, jammed impeller, rapid cycle, overvoltage and undervoltage conditions. The PumpSaver®Plus Model 233P protects 230 volt, 2 or 3 wire, 1/3 to 3 hp pumps.

A calibration adjustment allows the Model 233P to be calibrated to your specific pumping applications, thereby reducing the possibility of false or nuisance tripping. A proprietary microcontroller based voltage, power factor and current-sensing circuit constantly monitors for power fluctuations, overcurrent and underload conditions. When an abnormality, such as loss of suction, is detected, the PumpSaver®Plus deactivates its output relay and directly disconnects the pump motor. The PumpSaver®Plus then begins its user-selectable "Restart Delay" (dry-well recovery) timer. When the timer expires or power is removed and reapplied, the PumpSaver®Plus reactivates its output relay and allows the pump to turn back on.

An infrared LED communicates directly with a hand-held diagnostic tool called the Informer (sold separately).

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

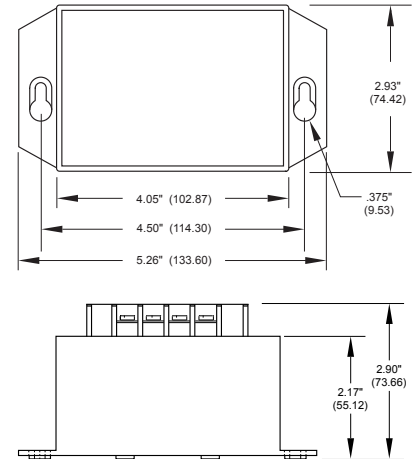
Features:

- Protects single-phase pumps from:
 - Dry well
 - Flow restrictions (dead head)
 - Overcurrent (jammed impeller)
 - Overvoltage
 - Undervoltage
 - Rapid cycling
- Ideal for submersible pumps
- State-of-the-art pump protection
- Infrared LED communication to SymCom's Informer
- UL Listed
- 5-year warranty
- Made in USA

Specifications

Functional Specifications	
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-second 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	1.5hp@240VAC (10 amps max.)
233P	3hp@240VAC (17 amps max.)
General Characteristics	
Operating Temperature	-40° to 55° C (-40° to 131° F)
Maximum Input Power	5 W
Wire Gauge	Solid or Stranded 10 - 22AWG
Terminal Torque	13 in.-lbs.
Standards Passed	
Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 2, 4kV contact, 6kV air
Surge Immunity	IEC 61000-4-5, Level 4, 4kV line-to-line and line-to-ground
Safety Marks	
cUL Listed	UL508, C22.2 No. 14
Dimensions	5.26" W x 2.93" H x 2.90" D
Weight	14 oz.
Mounting Methods	#8 screws

Enclosure Dimensions

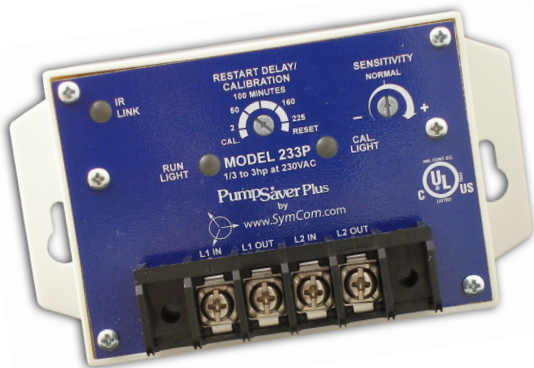


How to order:

- Part Number: 233P-1.5
- 233P-1.5-ENCL (for more information see spec sheet for ENCL enclosure)
- 233P
- 233P-ENCL (for more information see spec sheet for ENCL enclosure)



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The Model 233P single-phase PumpSaver®Plus is a pump monitor designed to protect single-phase pumps from dry-well, dead-head, jammed impeller, rapid cycle, overvoltage and undervoltage conditions. The PumpSaver®Plus Model 233P protects 230 volt, 2 or 3 wire, 1/3 to 3 hp pumps.

A calibration adjustment allows the Model 233P to be calibrated to your specific pumping applications, thereby reducing the possibility of false or nuisance tripping. A proprietary microcontroller based voltage, power factor and current-sensing circuit constantly monitors for power fluctuations, overcurrent and underload conditions. When an abnormality, such as loss of suction, is detected, the PumpSaver®Plus deactivates its output relay and directly disconnects the pump motor. The PumpSaver®Plus then begins its user-selectable "Restart Delay" (dry-well recovery) timer. When the timer expires or power is removed and reapplied, the PumpSaver®Plus reactivates its output relay and allows the pump to turn back on.

An infrared LED communicates directly with a hand-held diagnostic tool called the Informer (sold separately).

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

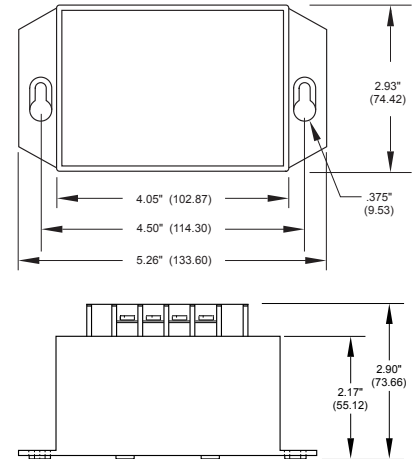
Features:

- Protects single-phase pumps from:
 - Dry well
 - Flow restrictions (dead head)
 - Overcurrent (jammed impeller)
 - Overvoltage
 - Undervoltage
 - Rapid cycling
- Ideal for submersible pumps
- State-of-the-art pump protection
- Infrared LED communication to SymCom's Informer
- UL Listed
- 5-year warranty
- Made in USA

Specifications

Functional Specifications	
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-second 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	1.5hp@240VAC (10 amps max.)
233P	3hp@240VAC (17 amps max.)
General Characteristics	
Operating Temperature	-40° to 55° C (-40° to 131° F)
Maximum Input Power	5 W
Wire Gauge	Solid or Stranded 10 - 22AWG
Terminal Torque	13 in.-lbs.
Standards Passed	
Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 2, 4kV contact, 6kV air
Surge Immunity	IEC 61000-4-5, Level 4, 4kV line-to-line and line-to-ground
Safety Marks	
cUL Listed	UL508, C22.2 No. 14
Dimensions	5.26" W x 2.93" H x 2.90" D
Weight	14 oz.
Mounting Methods	#8 screws

Enclosure Dimensions

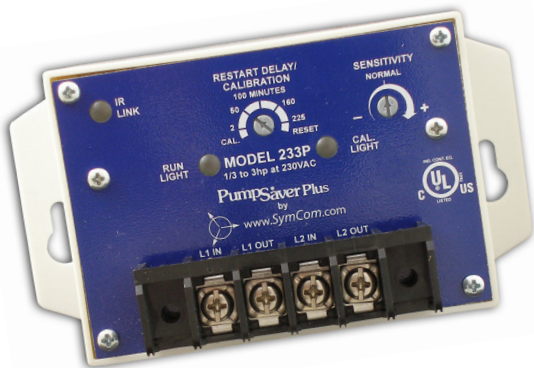


How to order:

- Part Number: 233P-1.5
- 233P-1.5-ENCL (for more information see spec sheet for ENCL enclosure)
- 233P
- 233P-ENCL (for more information see spec sheet for ENCL enclosure)



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The Model 233P single-phase PumpSaver®Plus is a pump monitor designed to protect single-phase pumps from dry-well, dead-head, jammed impeller, rapid cycle, overvoltage and undervoltage conditions. The PumpSaver®Plus Model 233P protects 230 volt, 2 or 3 wire, 1/3 to 3 hp pumps.

A calibration adjustment allows the Model 233P to be calibrated to your specific pumping applications, thereby reducing the possibility of false or nuisance tripping. A proprietary microcontroller based voltage, power factor and current-sensing circuit constantly monitors for power fluctuations, overcurrent and underload conditions. When an abnormality, such as loss of suction, is detected, the PumpSaver®Plus deactivates its output relay and directly disconnects the pump motor. The PumpSaver®Plus then begins its user-selectable "Restart Delay" (dry-well recovery) timer. When the timer expires or power is removed and reapplied, the PumpSaver®Plus reactivates its output relay and allows the pump to turn back on.

An infrared LED communicates directly with a hand-held diagnostic tool called the Informer (sold separately).

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

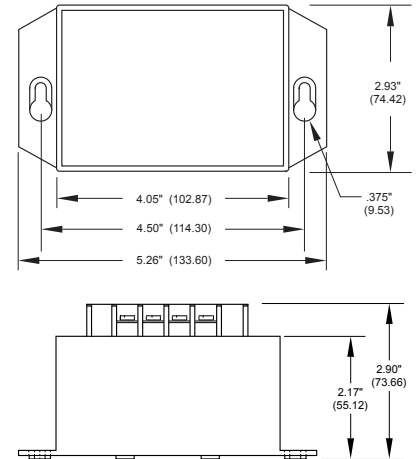
Features:

- Protects single-phase pumps from:
 - Dry well
 - Flow restrictions (dead head)
 - Overcurrent (jammed impeller)
 - Overvoltage
 - Undervoltage
 - Rapid cycling
- Ideal for submersible pumps
- State-of-the-art pump protection
- Infrared LED communication to SymCom's Informer
- UL Listed
- 5-year warranty
- Made in USA

Specifications

Functional Specifications	
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-second 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	1.5hp@240VAC (10 amps max.)
233P	3hp@240VAC (17 amps max.)
General Characteristics	
Operating Temperature	-40° to 55° C (-40° to 131° F)
Maximum Input Power	5 W
Wire Gauge	Solid or Stranded 10 - 22AWG
Terminal Torque	13 in.-lbs.
Standards Passed	
Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 2, 4kV contact, 6kV air
Surge Immunity	IEC 61000-4-5, Level 4, 4kV line-to-line and line-to-ground
Safety Marks	
cUL Listed	UL508, C22.2 No. 14
Dimensions	5.26" W x 2.93" H x 2.90" D
Weight	14 oz.
Mounting Methods	#8 screws

Enclosure Dimensions



How to order:

- Part Number: 233P-1.5
- 233P-1.5-ENCL (for more information see spec sheet for ENCL enclosure)
- 233P
- 233P-ENCL (for more information see spec sheet for ENCL enclosure)



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Single-Phase PumpSaver®-Grundfos™ Control Box

Model 234-P

SymCom PumpSaver® Model 234-P protects single-phase pumps from dry-well, dead-head, rapid-cycle, jammed-impeller, and over/undervoltage conditions. Typical applications include residential waterwells, commercial waterwells, irrigation wells, and golf course and other sprinkler systems.

The PumpSaver® Model 234-P is designed to be mounted inside a Grundfos™ control box to protect 1/3-3hp, 2- or 3-wire, 230V pumps.

An infrared LED communicates directly with a hand-held diagnostic tool called the Informer (sold separately).



Specifications

Functional Specifications:	
Adjustments/Settings	
Overcurrent	125% of calibration point
Underload (dry-well)	Adjustable (70 - 90% of calibrated run power)
Overvoltage	265VAC
Undervoltage	190VAC
Number of restarts allowed in a 60-second 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:	230VAC
Load Range:	1/3 – 3 hp
Frequency:	50*/60Hz (Note: 50Hz will increase all delay timers by 20%)
Output Characteristics	
Output Contact Rating-SPST	3 hp@240VAC (17 amps max.)
General Characteristics:	
Operating Temperature:	-40° to 70° C (-40° to 158° F)
Power Consumption:	5 Watts (max.)
Standards Passed:	
Electrostatic Discharge (ESD)	IEC1000-4-2, Level 2, 4kV contact, 6kV air
Dimensions	Fitted to Grundfos™ Control Box
Weight	14 oz.
Mounting Methods:	Grundfos™ Control Box

How to order:

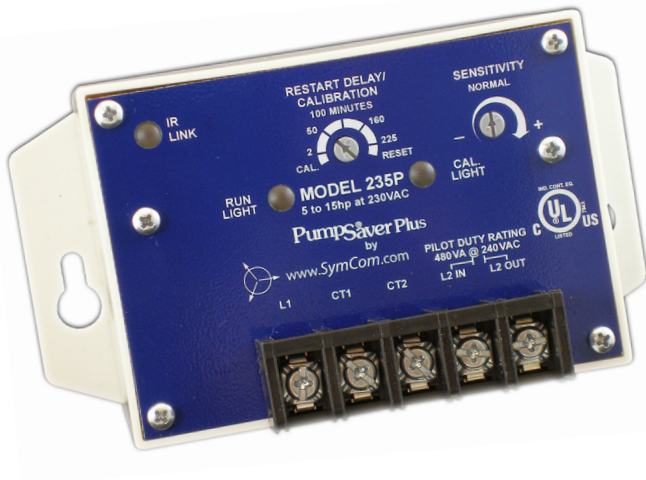
Part Number: 234-P



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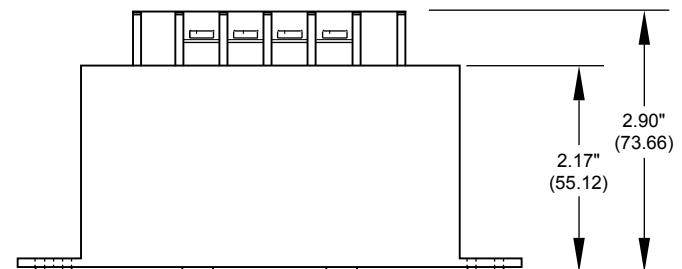
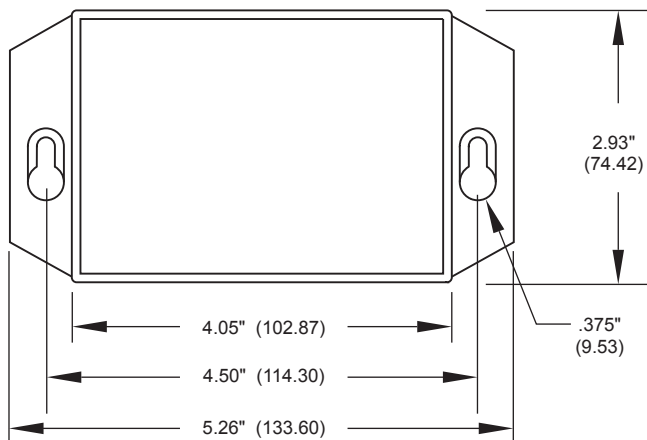
Single-Phase PumpSaver®Plus

Model 235P



Picture may not be representative of actual product.

Size	Current	CT
5 - 7½ HP	27.5 - 42.1	50:5
10 HP	51	75:5
15 HP	75	100:5



The Model 235P PumpSaver®Plus is designed to protect single-phase pumps from dry-well, dead-head, jammed impeller and overvoltage and undervoltage conditions. The PumpSaver®Plus Model 235P protects 5-15 hp, 230V pumps.

A calibration adjustment allows the Model 235P to be calibrated to your specific pumping applications, thereby reducing the possibility of false or nuisance tripping. A unique microcontroller-based voltage and current-sensing circuit constantly monitors the incoming power for fluctuations causing overcurrent and undercurrent. When an abnormality, such as loss of suction is detected, the PumpSaver®Plus deactivates its output relay and directly disconnects the pump motor. The PumpSaver®Plus then begins its user-selectable "Restart Delay" (dry-well recovery) timer. When the timer expires or power is removed and reapplied, the PumpSaver®Plus reactivates its output relay and allows the pump to turn back on.

The Model 235P communicates with a hand-held diagnostics tool called the Informer (sold separately). The Informer displays 15 parameters including calibration points, trip points, running points, and last faults.

An external current transformer is required for operation.

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

Specifications

Functional Specifications:	
Adjustments/Settings	
Overcurrent	125% of calibration point
Underload (dry-well)	Adjustable (70 to 90% of calibrated run point)
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	5 - 15 hp (external current transformer required)
Frequency	50/60Hz (Note: 50Hz will increase all delay timers by 20%)
Output Characteristics	
Output Contact Rating-SPST	A300, 720VA@240VAC General Purpose (10 amps max.)
General Characteristics	
Operating Temperature	-40° to 55° C (-40° to 131° F)
Maximum Input Power	5 W
Wire Gauge	Solid or Stranded 10 - 22AWG
Terminal Torque	13 in.-lbs.
Standards Passed	
Electrostatic Discharge (ESD)	IEC 61000-4-2, Level 2, 4kV contact, 6kV air
Surge Immunity	IEC 61000-4-5, Level 4, 4kV line-to-line and line-to-ground
Safety Marks	
cUL Listed	UL508, C22.2 No. 14
Dimensions	5.26" W x 2.93" H x 2.90" D
Weight	14 oz.
Mounting Methods	#8 screws

How to order:

Part Number: 235P

235P-ENCL (for more information see spec sheet for ENCL enclosure)



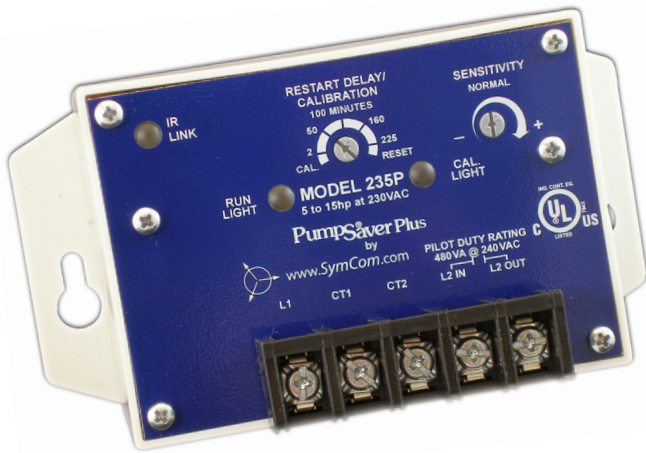
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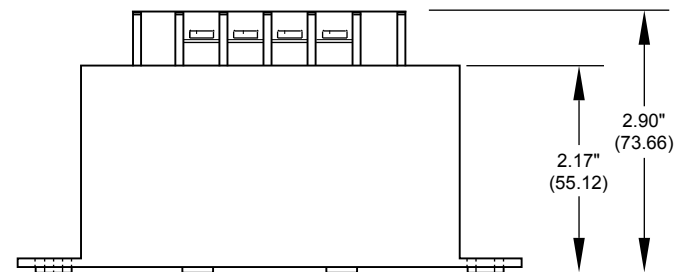
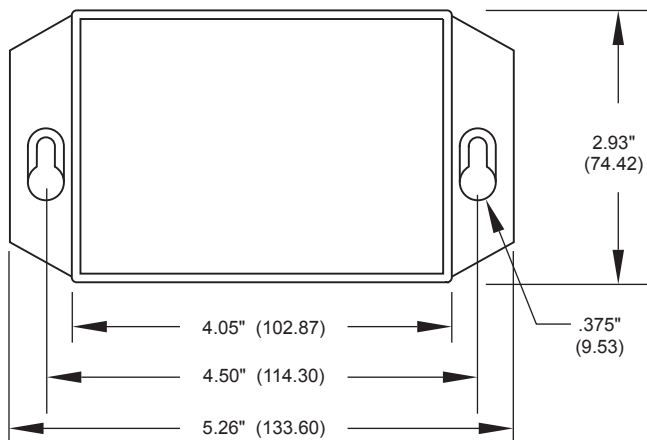
Single-Phase PumpSaver®Plus

Model 235P



Picture may not be representative of actual product.

Size	Current	CT
5 - 7½ HP	27.5 - 42.1	50:5
10 HP	51	75:5
15 HP	75	100:5



The Model 235P PumpSaver®Plus is designed to protect single-phase pumps from dry-well, dead-head, jammed impeller and overvoltage and undervoltage conditions. The PumpSaver®Plus Model 235P protects 5-15 hp, 230V pumps.

A calibration adjustment allows the Model 235P to be calibrated to your specific pumping applications, thereby reducing the possibility of false or nuisance tripping. A unique microcontroller-based voltage and current-sensing circuit constantly monitors the incoming power for fluctuations causing overcurrent and undercurrent. When an abnormality, such as loss of suction is detected, the PumpSaver®Plus deactivates its output relay and directly disconnects the pump motor. The PumpSaver®Plus then begins its user-selectable "Restart Delay" (dry-well recovery) timer. When the timer expires or power is removed and reapplied, the PumpSaver®Plus reactivates its output relay and allows the pump to turn back on.

The Model 235P communicates with a hand-held diagnostics tool called the Informer (sold separately). The Informer displays 15 parameters including calibration points, trip points, running points, and last faults.

An external current transformer is required for operation.

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

Specifications

Functional Specifications:	
Adjustments/Settings	
Overcurrent	125% of calibration point
Underload (dry-well)	Adjustable (70 to 90% of calibrated run point)
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Number of restarts allowed in a 60-sec. period (rapid-cycling)	4
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Over/undervoltage	2 seconds
All other faults	Manual, 2-225 Minutes
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Supply Voltage	230VAC
Load Range	5 - 15 hp (external current transformer required)
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General Characteristics	
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Standards Passed	
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Surge Immunity	IEC 61000-4-5, Level 4, 4kV line-to-line and line-to-ground
Safety Marks	
cUL Listed	UL508, C22.2 No. 14
Dimensions	5.26" W x 2.93" H x 2.90" D
Weight	14 oz.
Mounting Methods	#8 screws

How to order:

Part Number: 235P

235P-ENCL (for more information see spec sheet for ENCL enclosure)



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Features

Insiders fit in existing control boxes, saving enclosure costs.

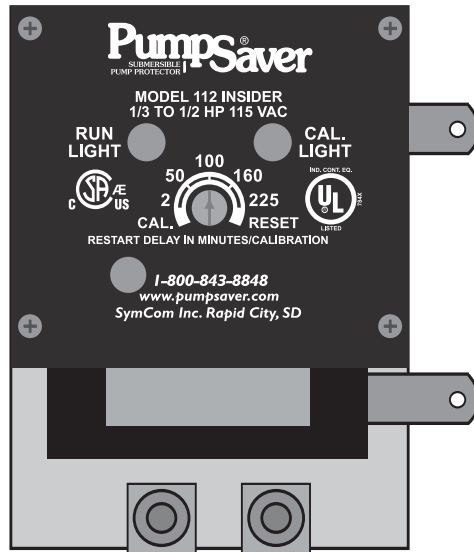
Installation is quick and easy—takes less than 30 seconds.

Infrared communication with Informer makes diagnostics simple.

Insiders can be calibrated to specific pump/motor combinations and various conditions.

Diagnostic LEDs indicate trip status and provide simple troubleshooting.

The restart delay can be set up to 225 minutes or to manual reset mode.



The Model 232-Insider single-phase PumpSaver® fits inside 1/3, 1/2, 3/4, and 1hp, 230V Grundfos control boxes. The **Model 112-Insider** single-phase PumpSaver® fits inside 1/3 and 1/2hp, 115V Grundfos control boxes. The PumpSaver® Model 112/232-Insider is a current monitor designed to protect single-phase pumps from dry-well, dead-head, jammed impeller, overvoltage and undervoltage conditions. Typical applications include residential water wells, commercial water wells, irrigation wells, and golf course systems.

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

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. Contact SymCom for information on a product to fit these applications.

PumpSaver®
SUBMERSIBLE
PUMP PROTECTOR

Models 232-Insider & 112-Insider Single-Phase PumpSaver®

Engineered
Protection for
Grundfos Pumps

Protects Single-Phase Pumps from:

- Dry well
- Flow restrictions (dead-head)
- Overcurrent (jammed impeller)
- Overvoltage
- Undervoltage

Standard Features:

- Fits inside Grundfos control boxes
- State-of-the-art pump protection
- Fuzzy logic software
- Infrared LED communication to Symcom's Informer
- 5-year warranty
- Made in USA

Model 232-Insider & Model 112-Insider

Single-Phase PumpSaver®

PumpSaver®

SUBMERSIBLE
PUMP PROTECTOR

Specifications

Operating Points

Special Options

Specifications Model 112-Insider..... Model 232-Insider

1 Phase Line Voltage ($\pm 10\%$)..... 115VAC.....230VAC
 Load Range 1/3-1/2hp 1/3-1hp
 Frequency 50*/60Hz 50*/60Hz

Operating Points

- Overload 125% of Cal. Point 125% of Cal. Point
- High Voltage Reset Point 132.5 265
- Low Voltage Reset Point 95 190
- Trip Delay Time (Overload) 5 sec. 5 sec.
- Trip Delay Time (Dry well) 2 sec.** 2 sec.**

Restart Delay Time

- Overvoltage/Undervoltage Delay..... 5 sec. 5 sec.
- All other faults (dry-well rec. timer) ... 2-225 min. 2-225 min.

Output Contact Rating (SPST)..... 1hp @ 115VAC 1hp @ 240VAC
 (17 amps max.) (17 amps max.)

Safety Marks

- UL UL508 UL508
- CSA C22.2 No.14 C22.2 No.14

Weight..... 10 oz. 10 oz.

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

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

**Other trip delays and restart delays are available upon request.

SymCom warrants its microcontroller based products against defects in material or workmanship for a period of five (5) years from the date of manufacture. All other products manufactured by SymCom shall be warranted against defects in material and workmanship for a period of two (2) years from the date of manufacture. For complete information on warranty, liability, terms, returns, and cancellations, please refer to the SymCom Terms and Conditions of Sale document.

