

## TECHNICAL BROCHURE

BCPSAVER



### FEATURES

Quickly and easily calibrates any submersible or centrifugal pump to jobsite conditions (voltage and current).

Available installed in new QD style, NEMA 3R Rainproof (outside) enclosures or shipped loose for installation in existing control panels.

Single phase units work with the hand held Informer for simple, fast troubleshooting and system diagnostics.

Available in single and three phase models.

Insider Plus models fit in CentriPro, Pentair and Franklin Electric Quick Disconnect type control boxes from ½ - 1 HP. Insider Plus units include a Fiber Optic Kit as standard. It is used to signal the optional Informer.

Protect against dry wells, low and high voltage, over and under current, rapid cycling, jammed pump, dead heading (flow restriction).

Automatic reset selectable, 2-225 minutes or can be set on manual reset.

Adjustable underload sensitivity on Plus models.

# PumpSaver® Plus Insiders

## PumpSaver® Plus 111, 233 and 235

### 777KWHP - 3 Phase



**CentriPro**  
a xylem brand

**PUMPSAVER PLUS 111 / 233, 23315 AND 235****APPLICATIONS - SINGLE PHASE ONLY**

- All submersible pumps, regardless of motor manufacturer
- Centrifugal pumps
- Circulating pumps
- Cooling pumps
- Environmental pumps
- Residential water wells
- Commercial water wells
- Irrigation wells
- Golf course systems

**Protects From:**

- Dry well (run dry condition)
- Flow restrictions (dead head)
- Over current (jammed impeller)
- Over voltage
- Under voltage
- Rapid cycling

**PLUS MODEL FEATURES**

- Can be calibrated to specific pump / motor combinations and various conditions
- Will work with destaged pump models ending in 05R
- Infrared LED communication with the INFORMER makes diagnostics simple
- "Run Light" indicates the unit is functioning
- "Run Light" and "Cal. Light" used as diagnostic indicators
- Restart delay can be set up to 225 minutes or placed in manual reset mode
- Micro-controller provides better accuracy and higher reliability than analog designs
- Plus units feature more data storage memory which is viewable using an Informer
- Sensitivity adjustment for dry well trip point
- Installing PumpSaver Plus equipment on all your installations allows fast, simple troubleshooting with an Informer, eliminate guesswork, get all the data within minutes of arriving at a jobsite.
- 5-year warranty

## Residential Water Systems

### ORDER NUMBERS AND SPECIFICATIONS

Order No.	SymCom New Part Numbers **	Phase	Notes	HP Range	Voltage	Enclosure Provided	
						Yes / No	Type
111Insider	111-Insider-P	1	1	$\frac{1}{3}$ - 1	115	N/A	N/A
231Insider	231-Insider-P		1		230	N/A	N/A
111	111P		–		115	No	–
1113RL	111P-ENCL		2		115	Yes	QD - ENCL
23315	233P-1.5		–	$\frac{1}{3}$ - 1½	230	No	–
233153RL	233P-1.5-ENCL		2		230	Yes	QD - ENCL
233	233P		–	$\frac{1}{3}$ - 3	230	No	–
2333RL	233P-ENCL		2		230	Yes	QD - ENCL
2353RL50	235P-ENCL + CT0050D10		2, 3	5 - 7½	230	Yes	QD - ENCL
2353RL75	235P-ENCL + CT0075D10		2, 3	10	230	Yes	QD - ENCL
2353RL100	235P-ENCL + CT0100D10		2, 3	15	230	Yes	QD - ENCL
235	235P		4	5 - 15	230	No	–
777KWHP		3	–	$\frac{1}{3}$ - 150	200-480	No	–

\*\* - P signifies the Plus version which has enhanced electronic features and memory.

\*\* - ENCL denotes the new, N3R QD Enclosure effective July/August 2009.

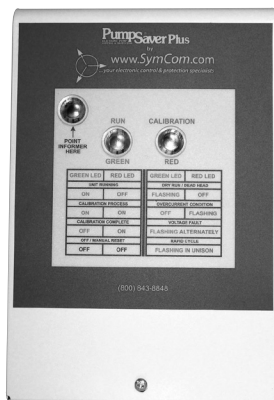
#### NOTES:

- 1 - The Insiders install in submersible single phase quick disconnect control boxes and require no enclosure.
- 2 - Models with a ...3RL suffix are installed in a NEMA 3R enclosure which has both Run and Calibrate lights.
- 3 - Models contain a current transformer.
- 4 - The 235 always requires a Current Transformer, use this model for repairs. Order the 2353RL- -- units which contain current transformers for new applications.

### ACCESSORY ORDER NUMBERS

CT0050D10	Model 235, 5 - 7.5 HP, 50 Amp Current Transformer
CT0075D10	Model 235, 10 HP, 75 Amp Current Transformer
CT0100D10	Model 235, 15 HP, 100 Amp Current Transformer
INFORMER	Hand Held Diagnostic Tool

#### OUTSIDE OF NEW N3R - ENCL



#### INSIDE OF NEW N3R- ENCL WITH A 233P INSTALLED



Dimensions: 3.5" deep, 5.4" wide, 8" high  
 Knockouts: ½" (1 each side, 2 bottom)  
 ¾" (1 each side, 1 bottom)

### PUMPSAVER 111INSIDER (115V) AND 231INSIDER (230V)



#### APPLICATION

- Submersible pump with a quick disconnect style control box

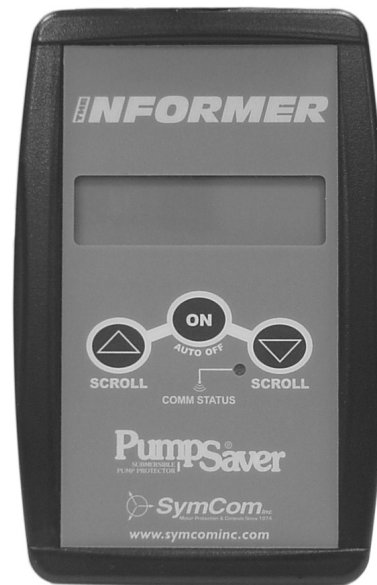
#### Protects From:

- Dry well (run dry condition)
- Flow restrictions (dead head)
- Over current (jammed impeller)
- Over voltage
- Under voltage

#### FEATURES

- Fits inside a 3 wire quick disconnect style control box
- Can be calibrated to specific pump / motor combinations and various conditions
- Will work with destaged pump models ending in 05R
- Infrared LED communication with the INFORMER makes diagnostics simple
- Quick and easy installation - less than 30 seconds
- "Run Light" indicates the unit is functioning
- "Run Light" and "Cal. Light" used as diagnostic indicators
- Restart delay can be set up to 225 minutes or placed in manual reset mode
- 5-year warranty

### INFORMER



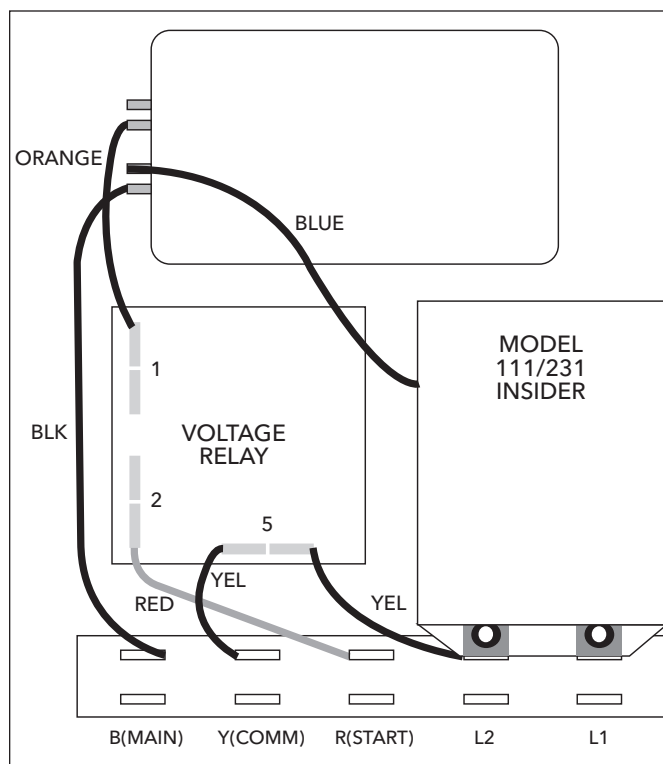
#### FEATURES

- The Informer is a handheld diagnostic tool designed for use with single-phase PumpSaver models.
- The Informer uses an infrared receiver to access data sent from the PumpSaver, which can be helpful for troubleshooting the system.

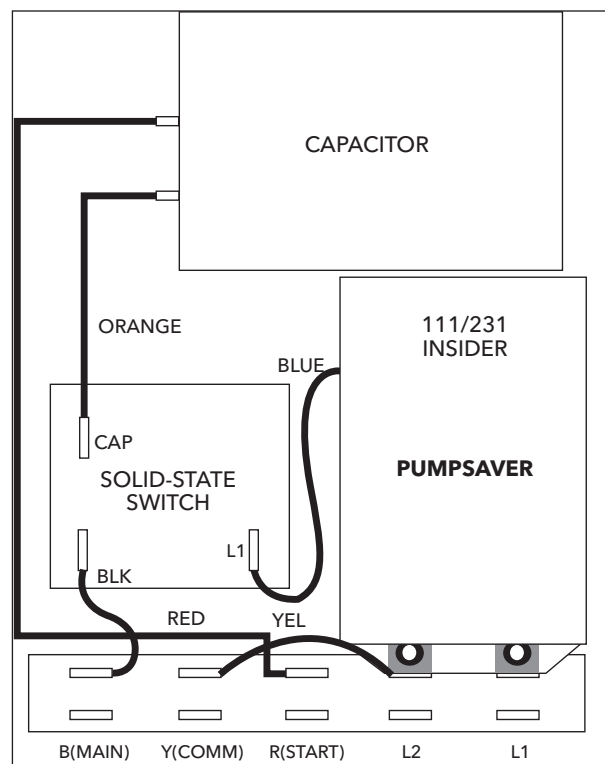
#### The Informer displays parameters including:

- Real-time voltage, current and power
- Dry-well and overload trip points
- Calibration voltage
- Last 20 fault conditions
- Voltage, current and power at last fault condition
- Highest/lowest voltage and current since last calibration
- Line power and dry well trip point
- Total pump run time
- Number of pump starts
- Restart delay setting and time maining (if tripped)
- Pump amperage

### CENTRIPRO CONTROL BOX WITH INSIDER INSTALLED



### INSIDER MOUNTED IN FE, Q-D SUBMERSIBLE CONTROL BOX



#### To install in CP, QD control box:

- Remove the cover from the front of the 3-wire CentriPro control box.
- Remove the yellow wire from the terminal strip at L2.
- Remove the black wire between L1 and the capacitor.
- Press the PumpSaver onto the L1 and L2 terminals.
- Reconnect the yellow wire to L2 on the PumpSaver.
- Connect the blue wire attached to the PumpSaver to the dual-lug terminal (with the black wire) of the capacitor.

#### To install in FE, QD control box:

- Remove blue wire from terminal strip and solid state switch (blue relay) and set aside.
- Remove yellow jumper wire from terminal L2.
- Install Insider by aligning tabs with upper L2 and L1 tabs and pushing onto tabs.
- Connect yellow wire onto L2 terminal on Insider.
- Connect blue wire attached to Insider to L1 on solid state switch (blue relay).

**PUMPSAVER 777KWHP****APPLICATIONS**

The Model 777-KW/HP can be used on ANY 3-phase motor. Some examples include: Can Pumps, Mag Drive Pumps, Fractional Horsepower Pumps and Motors, Submersible Pumps and Coal Bed Methane Wells.

**DESCRIPTION**

The Model 777-KW/HP is a fully-programmable motor and pump protection relay with power-monitoring capability. Voltage, current and power measurements are displayed on the three-digit display, as well as fault information and setpoints. The display simplifies troubleshooting and allows the user to easily and precisely configure setpoints. The Model 777-KW/HP has the following adjustable protection features:

**STANDARD FEATURES OF 777KWHP**

- UL Listed as an overload device
- Digitally programmable for precise customization
- 15 parameters can be programmed for maximum protection
- Alphanumeric LED diagnostic display
- Last fault memory provides instant troubleshooting diagnostics
- Recordable voltage, current, last four faults, KWh usage, and power factor with communications package.
- Compact design saves panel space
- Agency Listings: UL, cUL, CSA, CE
- RS485 communication port
- Tamper guard
- Remote reset
- Surface and DIN rail mount
- 5-year warranty
- Made in U.S.A.

**ADJUSTABLE PROTECTION FEATURES OF 777KWHP:**

- Low voltage
- High voltage
- Voltage unbalance
- UL Listed/CSA approved overload
- Trip class (5, 10, 15, 20, 30)
- Current unbalance
- Ground fault
- Low power
- High power (via network only)
- Rapid-cycle timer
- Fault/overload restart delay
- Underload restart delay
- Underpower/overpower trip delay

**Other user adjustable features include:**

- CT/loop multiplier so overcurrent and power setpoints can be made in actual amps, kW or HP.
- Number of restarts after faults - manual, automatic and semiautomatic options.
- Number of restarts after underload - manual, automatic and semiautomatic options
- Network address

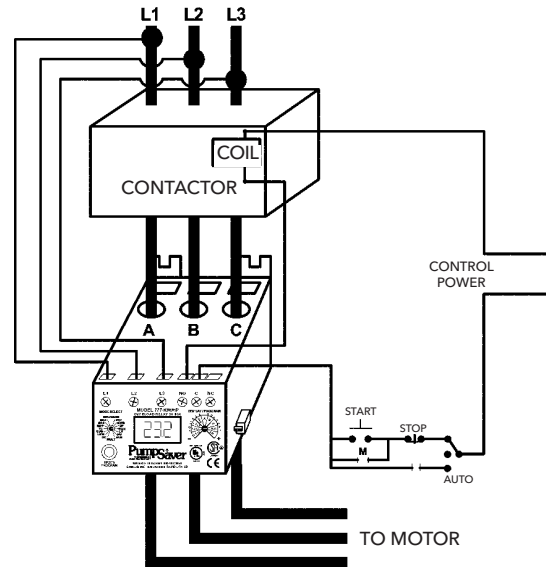
Adding the optional RS485MS-2W communications module activates the built-in Modbus RTU bus capabilities.

### PUMPSAVER 777KWHP (continued)

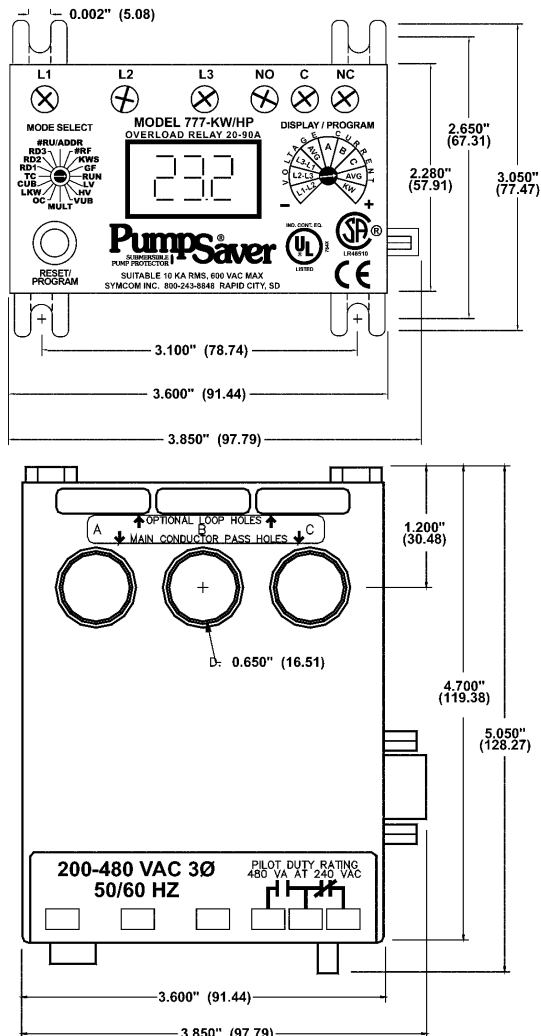
#### WIRING CONFIGURATION BASED ON MOTOR AMPS

Model	Full Load Amps	# of Loops	# of Conductors through A, B and C	MULT to Program (CT Ratio)
777-LR-KW/HP	1-2	1	2	2
	2-9	0	1	1
777-KW/HP	8-12	2	3	3
	12-25	1	2	2
	25-90	0	1	1
External CTs required. See wiring diagram for external CTs.	80-110	4	5	100 (100.5)
	110-160	4	5	150 (150.5)
	160-220	4	5	200 (200.5)
	220-320	4	5	300 (300.5)
	320-420	4	5	400 (400.5)
	400-520	4	5	500 (500.5)
	480-600	4	5	600 (600.5)
	560-800	4	5	800 (800.5)

#### TYPICAL WIRING DIAGRAM FOR MODEL 777-KW/HP (20-90 AMPS) AND 777-LR-KW/HP (2-9 AMPS)

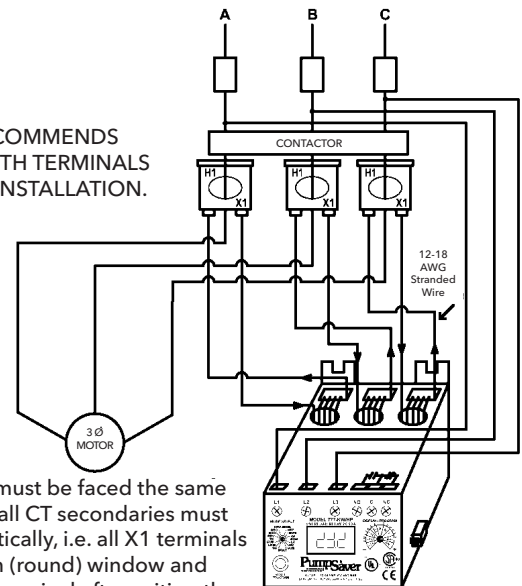


#### Dimensions for All 777-KW/HP Units



#### CURRENT TRANSFORMER WIRING DIAGRAM FOR MODEL 777-KW/HP (80-800 AMPS)

SYMCOM RECOMMENDS USING CTs WITH TERMINALS TO SIMPLIFY INSTALLATION.

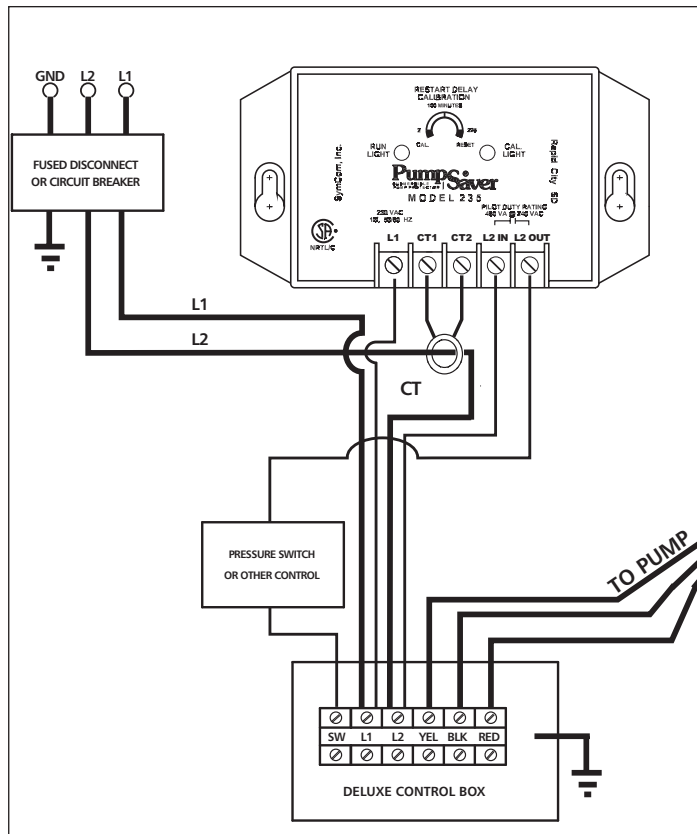


Note: All CTs must be faced the same direction and all CT secondaries must be wired identically, i.e. all X1 terminals enter the main (round) window and returns to H1 terminal after exiting the loop conductor window (rectangle).

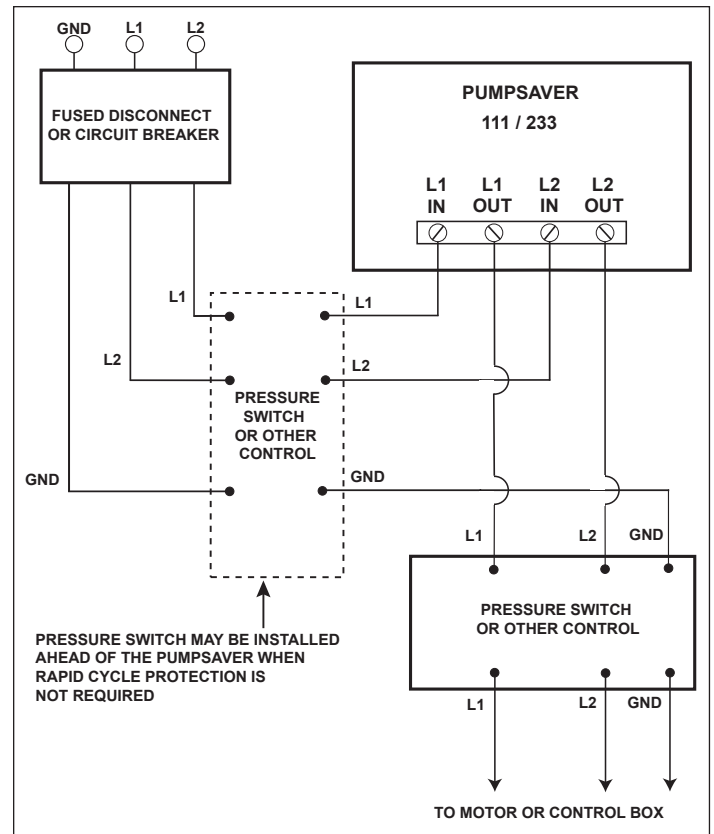
Every CT secondary must make five passes through the corresponding main conductor window on the Model 777-KW/HP.



## PUMPSAVER 235 TYPICAL WIRING DIAGRAM WITH DELUXE CONTROL BOX



## PUMPSAVER 111 / 233 TYPICAL WIRING DIAGRAM



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