

APRICUS-aqua PRESSUREWATCHER

THE COMPLETE MOTOR,
PUMP AND PRESSURE SYSTEM
PROTECTOR, TAKING CARE OF IT ALL...
JUST ADD 2 + 3



NOW ALL-IN-ONE!

Complete electrical and hydraulic pressure system management! Enclosure provides mounting space for PSC motor RUN capacitor and CSIR motor START capacitor. See page 12 for selection guide. Pressure switch and non-return valve not included.

PN278440 (Version 1/2023)

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WARNING:

To avoid possible fatal shock, disconnect power at the main power distribution board before installing, wiring or servicing your PRESSUREWATCHER
Read these instructions before attempting any installation or operation

DO YOU NEED TO CONTROL YOUR PRESSURE PUMP?

ASK YOURSELF THESE SIMPLE QUESTIONS:

What is the PRESSUREWATCHER?

PRESSUREWATCHER is a **one model for all** motor and pump sizes pressure management system with easy field presetting that also provides comprehensive motor and pump protection. The **PRESSUREWATCHER** is designed with **simplicity, quality and value for money** for maximum protection of motors and pumps. It is ideally designed for pressure system pump applications using all motor types. The **simple 2-button process** places the controller safely in preset mode for individual on site tuning to the correct operating parameters. Parameters are stored in the controller to provide the **least amount of nuisance tripping** with the widest possible supply voltage operating range, including bad power conditions.

When do I use PRESSUREWATCHER?

PRESSUREWATCHER is used when **hassle-free pressure pump protection** against electrical supply variations and varying pressure conditions are required while the managing the water system pressure. Installation **requires a minimum amount of equipment** to ensure that the preset parameters are within the motor and pump specifications.

Where do I use PRESSUREWATCHER?

PRESSUREWATCHER is suitable for all single and three phase borehole, surface and general water pressure applications, compatible with all borehole and other water pump controls where pressure control is required.

Why the PRESSUREWATCHER?

Pressure control switches with hysteresis as well as other pressure control devices require additional electrical protection to make sure that the pressure pump operates correctly and is protected against **electrical supply fluctuations and abnormal rapid cycling**, caused by faulty operation or system failure. In some cases an additional pressure tank may be required to eliminate rapid switching on and off of the pump. The **PRESSUREWATCHER** system works with a **standard pressure switch**, connected to the Switch input, is easy to install and reduces nuisance tripping to a minimum under bad electrical supply conditions. Operating conditions and diagnostics are visible on the **simplified display**, giving you peace of mind and warning you before you experience any damage or loss of water supply.

Why not another product?

- Many **advanced watchdog parameters** have been incorporated into the compact **PRESSUREWATCHER**® electronic controller, designed and manufactured in South Africa. Parameters include supply voltage quality monitoring, dynamic motor current monitoring, and an expert motor load management algorithm to deal with pressure system operation.
- The **Expert System operating in the background** requires no user inputs and operates continuously in the background, adapting to changing supply and load conditions. The Expert System designed for pressure management specifically takes care of typical pressure system needs.
- A **Switch input is provided** to control the motor as and when required.
- The **PRESSUREWATCHER**® system works with a standard pressure switch and non-return valve. The mounting of the controller, pressure switch and non-return valve can be done optimally:
 - a. The **PRESSUREWATCHER**® system **comprehensive indicator system** displaying the operating status of the controller at all times, including warning and fault conditions, can be placed where it is visible at all times
 - b. The non-return valve can be mounted in a borehole above the pump to avoid emptying of the rising main line
 - c. The pressure switch can be placed in an optimal position as close to the pump outlet as possible to allow for best operation.

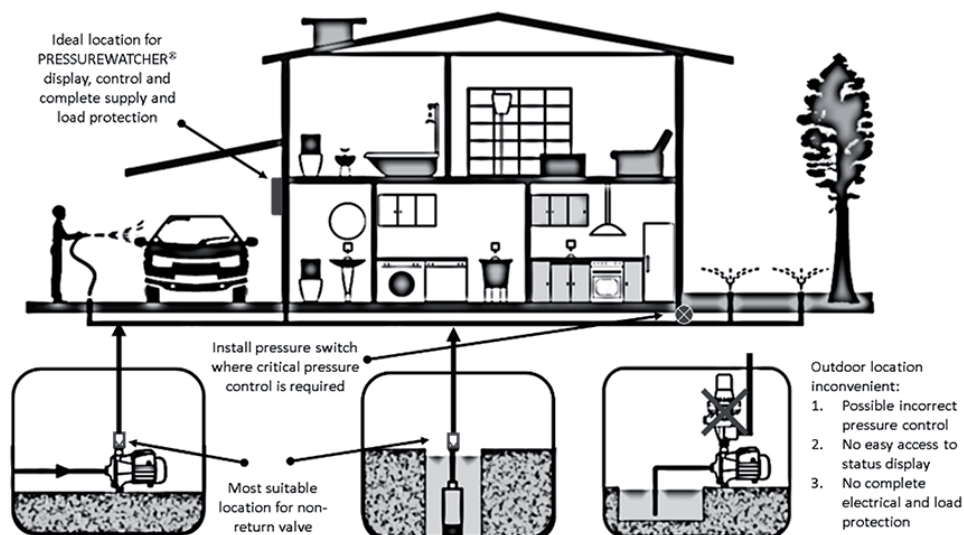


Figure 1 Convenient installation

WARNING:

To avoid possible fatal shock, disconnect power at the main power distribution board before installing, wiring or servicing your **PRESSUREWATCHER**®
Read these instructions before attempting any installation or operation

INTRODUCTION

PRESSUREWATCHER® manages your pumping system by:

- avoiding nuisance tripping
- making maximum use of a weak borehole when used with borehole applications
- allowing the widest possible voltage fluctuation
- anticipating transient overload conditions
- using an expert system to manage over-pumping conditions
- limiting the destructive effects of over currents and
- reducing rapid cycling automatically when required

PRESSUREWATCHER® protects your pressure system by:

- monitoring supply voltage
- monitoring current
- monitoring shaft load
- eliminating rapid cycling which can cause motor overheating
- detecting excessive continuous over currents
- detecting dry-running
- logging data during operation for fast and versatile technical support
- detecting bad connections
- allowing for voltage and current stabilization during start-up

PRESSUREWATCHER® diagnoses the cause of fault conditions:

- Status prior to *switch-on*—prevents switch-on under conditions regarded as detrimental to the motor/pump
- Status during *normal operation*—voltages or currents not within specification are continuously monitored without interrupting operation unnecessarily
- Load, current or voltage *fault* condition— a timing mode is activated following a fault condition

Severe faults are recognized and classified as conditions that make safe operation impossible, locking out operation.

Temporary holding or delay conditions due to transients to prevent nuisance tripping caused by transients are activated and causes soft delay, not visible to the user or operation.

Overload delay condition severity determines the reaction of the **PRESSURE-WATCHER®** in order not to compromise motor life

Underload delay condition invokes an intelligent waiting time determined for best operation to achieve maximum water delivery from a weak water source.

UNSPOKEN ADVANTAGES



Apart from all the features and benefits offered there are some distinct advantages to using the **PRESSUREWATCHER**® in your pressure installations. Your decision to use the **PRESSUREWATCHER**® system will result in considerable cost saving. Consider the advantages below before making any decisions or proceeding with your installation to avoid unnecessary additional expenses:

- **PRESSUREWATCHER**® **does not require additional switchgear** such as an ON/OFF switch, phase failure relay, rapid cycle supply detection relay, connectors, enclosures etc. to provide reliable operation.
- **Sliding lid design** - The convenient sliding lid design makes easy mounting and convenient access possible, yet provides a safe and secure installation.
- **Clear and simple visible status indication** with simple pictorial explanations eliminates the need for having to refer to the manual, while making easy communication with a service technician or installer possible where necessary.
- **Convenient installation** - The **PRESSUREWATCHER**® system allows you to **place the display, pressure switch and non-return valve in the most convenient locations**, eliminating hampered access to the status display, incorrect placement of the non-return valve and inconvenient location of the pressure switch. See picture.

TECHNICAL SPECIFICATIONS

The table below summarizes the technical specification of the PRESSUREWATCHER® . Models may differ with respect to timer characteristics, detailed voltage transition points and current levels.	
Single Phase - 230V Split Phase Motor (PSC) or Motor With Internal Capacitor	
Absolute Voltage Range	196V - 265V AC
Absolute Continuous Current	1A - 12A AC
Capacitor	Select for motor size - contact motor manufacturer
Enclosure	ABS 160x220x70mm
Weight	1 Kg
IP Rating	IP43
Single Phase - 230V CSIR Motor (Capacitor Start Induction Run)	
Absolute Voltage Range	196V - 265V AC
Absolute Continuous Current	1A - 8A AC
Capacitor	Select for motor size - contact motor manufacturer
Capacitor Relay Active	below 165V AC
Enclosure	ABS 160x220x70mm
Weight	1Kg
IP Rating	IP43
Three Phase - 400V	
Absolute Voltage Range	340V - 460V AC
Absolute Continuous Current	1A - 8A AC
Enclosure	ABS 160x220x70mm
Weight	1Kg
IP Rating	IP43
Pressure Switch Compatibility	
PRESSUREWATCHER® is compatible with any standard pressure switch suitable for the required pressure system operation, meeting the required pressure and allowing for hysteresis between cut-in and cut-out pressures.	

OPERATING SPECIFICATIONS

The table below summarizes the absolute maximum and minimum operating specifications of the PRESSUREWATCHER® system.	
Overload Control	Trip time varies with severity of overload and is approximate: < 120% Continuous run 120 - 125% 16 seconds 125 - 133% 12 seconds 133 - 150% 8 seconds > 150% 4 seconds
Dry Run, Underload and Blocked Inlet Control	PRESSUREWATCHER® detects inlet flow problems and will switch off within 20 seconds after detection. Pump will restart in 10 seconds and run for 20 seconds if fault condition persists. The cycle will repeat once more and normal operation will continue if fault is cleared. If not, PRESSUREWATCHER® will restart automatically in up to 1 hour. Reset is possible with power cycling (switch off-on)
Reset On Overload Switch Control	Auto reset after 15 minute delay, OR reset by power-up with 90 second delay. External Distribution Board circuit breaker or isolator: Required for protecting PRESSUREWATCHER® , cables and motor against extreme overload and short circuit conditions only – not recommended for repeated on/off switching activity. ON/OFF with PRESSURE SWITCH: Intermittent starting and stopping of the pump/motor unit utilizing Switch input. PRESSUREWATCHER® will start pump when cut-in pressure is reached.
Pressure Switch Cut-In Pressure	Set pressure switch to desired cut-in pressure. Typically 1.5 to 2.5 bar. Consider application static pressure when setting. PRESSUREWATCHER® will continue to pump for 10 seconds before switching off. When cut-out pressure is reached.
Pressure Switch Cut-Out Pressure	PRESSUREWATCHER® reacts to the set cut-out pressure. Follow pressure switch instructions. Avoid dangerously high pressures and consider pump characteristics
Rapid Cycle Protection	PRESSUREWATCHER® will allow 10 restarts if cut-in pressure is reached in less than 10 seconds after cut-out. Should a rapid cycle event be detected, a delay period of 10 minutes is activated to protect pump/motor assembly.

INSTALLATION

PRESSURE SWITCH INSTALLATION

Pressure switch position

Install the pressure switch on the outlet (high pressure side) of the pressure pump as close to the pump outlet as possible. If a pressure tank is used, install the pressure switch close to the pressure tank.

Pressure switch piping

Ensure that pressure switch electrical wiring is removed. If an existing pressure switch is being replaced, confirm that all water is drained and no pressure is present that may result in water spray if piping is opened. Refer to the picture below. Install the pressure switch using a suitable T-connection. Ensure that no leaks are present.



Figure 2
Pressure switch installation

Pressure switch wiring

Use one pole of the pressure switch wired to the **PRESSUREWATCHER®** Switch terminal.

Follow the pressure switch instructions to set the required start and stop pressure settings.



Figure 3 Pressure switch wiring

PRESSUREWATCHER® Control box mounting instructions

- The **PRESSUREWATCHER®** features an integrated easy-to-mount structure, requiring two mounting points with convenient keyhole feature. The spacing between holes is 70mm.
- Ensure sufficient clearance for sliding lid on flat mounting surface.
- Remove locking screw to allow lid removal by sliding upward.
- Mark the holes for the mounting plate, drill and use M4 screws with wall plugs (or wood) to fasten. Keyholes provide easy mounting.

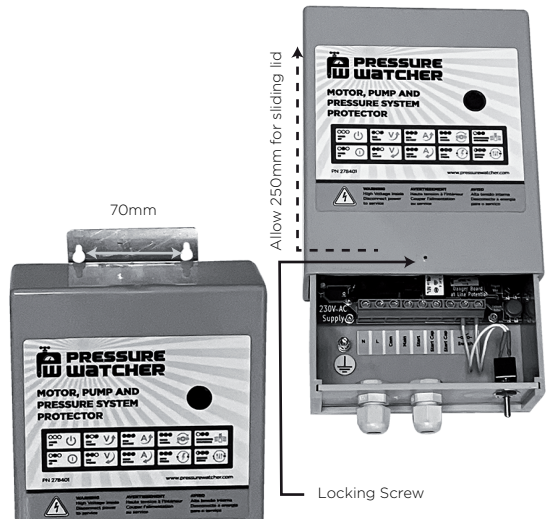


Figure 4 Mounting Details

Electrical installation - Opening the PRESSUREWATCHER®

- TURN OFF AC POWER AT THE SOURCE (DB BOARD)
- Remove locking screw.
- Slide the enclosure lid upwards to expose the connectors.

Electrical installation - Connecting the Motor

- Before connecting the motor to the **PRESSUREWATCHER®**, use a 500V DC insulation tester (Megger) to test the insulation resistance of both the motor and supply cable to earth.
- Verify the insulation resistance between each cable and earth.
- Check motor windings' resistance with multimeter and confirm with supplier.
- To determine a single phase motor windings, follow the guide below.
- Connect the motor to the **PRESSUREWATCHER®**, and ensure that the wiring of the motor matches the terminals of the **PRESSUREWATCHER®**.
- Verify that the **PRESSUREWATCHER®** is wired according to the specific schematic diagram
- Note that single phase and three phase motors differ.
- See instructions below. This is a guide and work done must be undertaken by a qualified electrical contractor.

Electrical installation - Identifying Single Phase Motor Windings

It is important to make sure that the windings of a single phase motor, requiring an external START/RUN are identified correctly. Incorrect wiring will cause permanent damage to the motor.

Follow the 3 steps in the tables below to avoid motor damage.

Complete the following table and select the correct combination.		
1. Tag the leads with the numbers and fill in the lead colours below.		
Number	Lead/wire Colour	
1		
2		
3		
2. Measure the individual resistances. Fill in the values in the table below.		
Measure from number... to number...	Resistance (Ohm)	Note High, Middle, Low reading (First complete all readings to the left)
1-2		
1-3		
2-3		

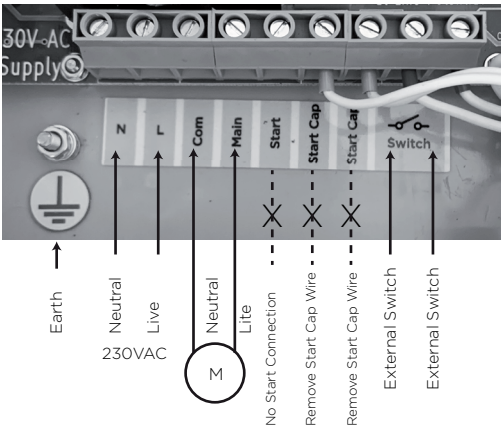
3. Select correct option below and add lead description to number on lead tag:	
Option 1 - 1-2 High, 1-3 Middle, 2-3 Low	
Number	Lead
1	Start
2	Main
3	Common
Option 2 - 1-2 Middle, 1-3 Low, 2-3 High	
Number	Lead
1	Common
2	Start
3	Main
Option 1 - 1-2 Low, 1-3 High, 2-3 Middle	
Number	Lead
1	Main
2	Common
3	Start

Electrical Installation – Record Installation Details Below For Future Reference

Single Phase Motor Connection - Built-in Capacitor

- Do not remove the built-in capacitor from motor junction box.
- Connect Live and Neutral to the Distribution Board. Ensure that the correct wire diameter is used.
- Connect the **PRESSUREWATCHER** leads (MAIN > LIVE and COMMON > NEUTRAL) to the motor terminal box.
- No motor START/RUN connection is required. Remove the START/RUN capacitor wires from the control box.
- Connect the pressure switch in parallel to the control box on/off switch provided. For automatic operation Switch must be in the off position. Use screened cable for pressure switch.
- Connect screen to control box earth. Do not earth any switch terminal.

Figure 5 Single Phase Motor - Built-in Capacitor



Single Phase Motor Connection - With Start Or Run Capacitor

- Select the correct capacitor, based on the motor type and size.
- Use the table as a guide.
- Contact the motor supplier for more information if required.
- Place the capacitor in the space provided for and connect the spade terminals. See picture.
- Ensure that the spade terminals are inserted correctly.
- Use the cable ties provided to secure the capacitor. See picture.
- Connect **PRESSUREWATCHER** Live and Neutral to the Distribution Board. Ensure that the correct wire diameter is used.

Suggested capacitors for single phase motors		
The table below offers some guidance with single phase motor capacitor selection. Confirm selection with motor supplier. Capacitor voltage must be rated for operation (330VAC-450VAC)		
PSC motor RUN capacitor selection		
230VAC Motor Rating	Motor Nominal Amps	Capacitor Size (uF)
0.37kW	3.4	16-20
0.55kW	4.3	20-30
0.75kW	5.8	30-45
1.1kW	8.4	40
1.5kW	10.7	50
CSIR motor START capacitor selection		
230VAC Motor Rating	Motor Nominal Amps	Capacitor Size (uF)
0.37kW	3.4	48
0.55kW	4.3	65
0.75kW	5.8	95

- Connect the **PRESSUREWATCHER**® to the motor, ensuring that MAIN, COMMON and START/RUN correspond.
- Connect the pressure switch in parallel to the control box on/off switch provided. For automatic operation Switch must be in the off position. Use screened cable for pressure switch.
- Connect screen to control box earth. Do not earth any switch terminal.

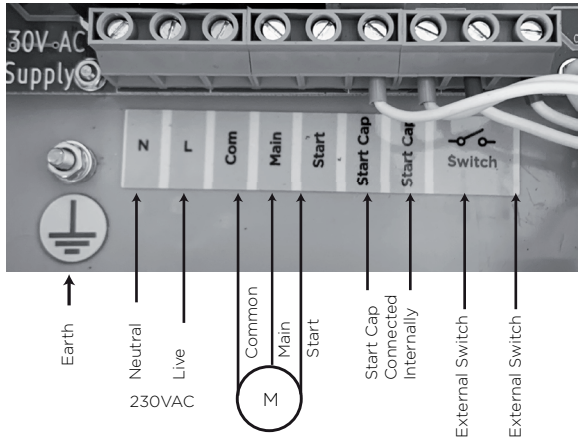


Figure 7 PSC or CSIR Single Phase Motor Requiring Capacitor Connections

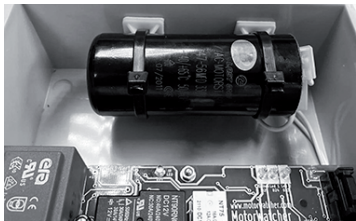
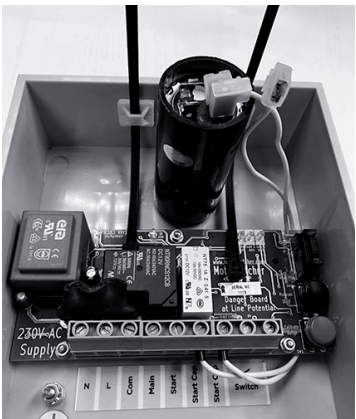


Figure 6 Installing START/RUN Capacitor

Three Phase Motor Connections

- Connect the incoming 400VAC 3 phase supply to the **PRESSUREWATCHER**® as shown in the photograph.
- Connect the motor to the **PRESSUREWATCHER**®, and ensure that the wiring of the motor matches the terminals of the **PRESSUREWATCHER**®.
- Connect the incoming earth wire to the **Earth** point.
- In the case of three phase operation, ensure that left **Switch** terminal is connected to Earth.
- Use shielded or screened two core cable if a remote switch is used.
- Earth the screen to the control box earth terminal provided.
- Ensure that remote switch complies with specifications and is double insulated.

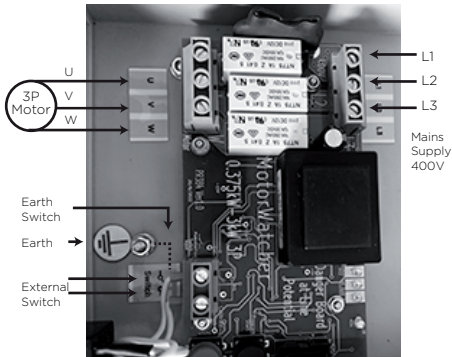
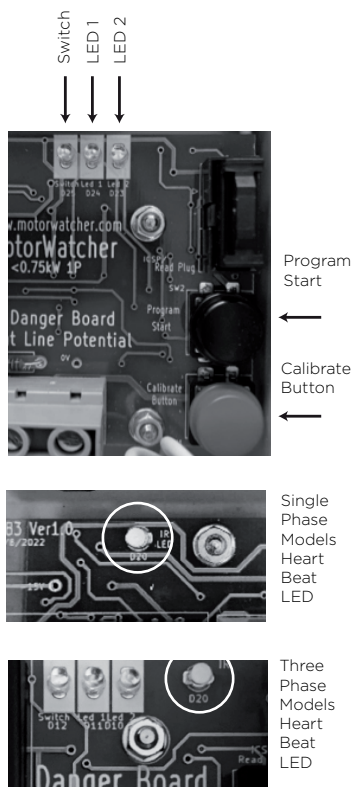


Figure 8 Three Phase Motor Connections

Presetting Motor/Pump Assembly On Site

- Open tap in house fully to allow free water flow and pressure switch to switch on.
- Verify that the **PRESSUREWATCHER®** is wired according to the specific schematic diagram/picture. Note that single phase and three phase motors differ.
- Switch the Isolator/Circuit Breaker on.
- Ensure that the mains supply matches the **PRESSUREWATCHER®** specification label using a multimeter set on Volts AC.
- Connect an AC current clamp meter on the Common motor lead if single phase, or on the "U" motor connection if a three phase unit
- Push and **hold** in position the **Program Start Button**.
- Push and **hold** in position the **Calibrate Button**.
- While holding the **Calibrate Button** in position, release the **Program Start Button**.
- During the Program sequence (see pictures) the following process takes place:
 - a. **LED 1** will immediately flash twice,
 - b. **LED 2** will flash twice,
 - c. **LED 1** will flash twice,
 - d. **LED 2** will flash a further 2 times.
- **PRESSUREWATCHER®** is now in the field preset mode.
- After the first double flash, the **Calibrate Button** can be released.
- The relay will pull in Immediately, starting the motor, and the **Heart Beat** will start flashing. See pictures.
- Using an AC current clamp meter, verify that the current to the motor matches the rating on the motor name plate.
- In the case that the readings are not as expected, switch off the Isolator/Circuit Breaker immediately to prevent motor failure.
- Recheck the wiring, motor direction in the case of a three phase motor or check that the pump is not stuck. Correct before continuing with the field presetting process.
- Check that the motor/pump rotation is correct if surface motors. In the case of submersible motors, check that the water flow is as expected. In the case of three phase motors, switch off the Isolator/Circuit Breaker, swap any two of the motor wires to reverse rotation. Start the presetting process again.

Figure 8
Pre-setting and commissioning
the PRESSUREWATCHER®



- Once the readings are acceptable, press the **Calibrate Button**. **LED 1** will immediately flash twice, then **LED 2** will flash twice, **LED 1** will flash again and **LED 2** a further 2 times to indicate that **PRESSUREWATCHER**® has recorded all required settings as the running parameters. After the first double flash, the Calibrate Button can be released.
- If the switch input is active then the **LED Switch** will light up and the controller will continue running. In the case that the switch input is not active, the controller will stop the motor running, and will wait for the switch input to be activated.
- Once the running parameters are programmed, the **Heart Beat LED** will flash to indicate the controller is operational.

OPERATION

Pressure Switch Operation

The pressure connected to the **Switch** terminals as indicated in the electrical wiring diagrammes/pictures must be done according to single phase and three phase earthing instructions. See Electrical Installation section. Remember to leave the ON/OFF switch in the **PRESSUREWATCHER**® in the OFF position when using a pressure switch connected in parallel to allow automatic pressure control operation.

Managing on/off switching activity- Rapid Cycle Protection

Your electric motor accumulates a certain amount of heat each time it is switched on. It must run for a period of time during which it has the opportunity to dissipate the heat. **PRESSUREWATCHER**® will do all the necessary calculations and management of the switching process. If too many starting cycles are called for, a waiting period will be applied. The water distribution system must be designed to allow the pump to run for as long as possible before switching off. When a pressure switch is connected as an external switch, the rapid cycle protection function of the **PRESSUREWATCHER**® is activated. Rapid cycling will now be prevented. Try to set your system parameters so that the motor will run for about 2 minutes without stopping.

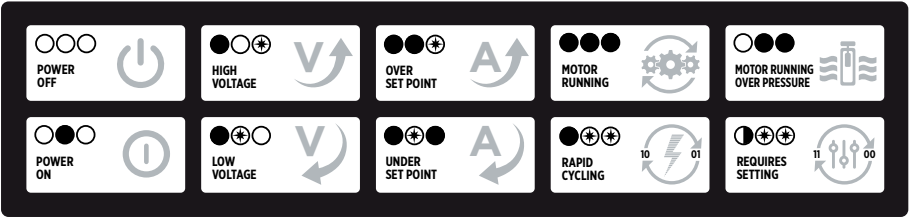
Switching ON/OFF

Under normal conditions switching on will result in a “click” (relay activating only in the case of CSIR motors) being heard and water being discharged. No special attention is required under normal operating conditions. The **PRESSUREWATCHER**® acts as a controlling switch that will interrupt power to your motor if all is not well in the borehole or pressure pumping system. **PRESSUREWATCHER**® checks for voltage variations and continuously measures various parameters of the motor.

Operation with Mains Switch

In some cases it may be necessary or desirable to use a Mains Switch in the distribution board supplying the **PRESSUREWATCHER**® which will interrupt power to the **PRESSUREWATCHER**® completely. In such a case the **PRESSUREWATCHER**® protects the motor although it cannot store some of the operating data. Operation in this manner may result in occasional trouble indication. This is not a recommended usual operating mode. (See trouble shooting section).

CONDITION INDICATOR



Operating conditions are displayed continuously, using simple mnemonics. Normal operation is indicated, as well as fault or dangerous operation. The accompanying legend provides the necessary information to allow for optimal use of any pumping system.

The development of the **PRESSUREWATCHER**[®] mnemonic system is a result of investigating the user interaction with motor/pump control systems. While useful voltage, current and power readings are possible, the interpretation of such information requires expert knowledge and hence is often more of a complication than an aid. The interpretation of voltages and currents are dealt with by the **PRESSURE-WATCHER**[®] expert system and incorporated in the mnemonic communication – no user interpretation is required.

Normal Operation

Status Indication	Condition/Status	Remedy/Action
	No mains supply to PRESSUREWATCHER [®]	Switch mains on (Main DB)
	Manual mode: Switch is in the OFF position. Automatic mode (pressure switch): System is pressurized. Pressure switch is in OFF position.	Switch ON to pump. Pump will start when pressure falls below set -point of pressure switch.
	Manual mode: Switch is in the ON position, pump is running. Automatic mode (float/pressure switch): Float/Pressure switch is in ON position, pump is running	Switch OFF to stop. Pump will stop when shut-off pressure is reached.
	Auto mode: Pressure switch OFF	Motor will switch OFF within 10 seconds.

Trouble Shooting

Status Indication	Condition/Status	Remedy/Action
	Motor/Pump does not switch on	Loss of power - check supply voltage (Are other appliances working?) Unit faulty - return to supplier. No serviceable internal parts.
	Motor/Pump does not switch on	Damaged switch - contact supplier Float/Pressure switch in series - float/pressure switch is off. Check pressure or tank level. Pump will start when pressure or water level drops. Float/Pressure switch in series - float/pressure switch is on. Float/pressure switch is faulty.
	Motor/Pump does not switch off	Damaged switch - contact supplier PRESSUREWATCHER® faulty return to supplier. No serviceable internal parts.
	Motor/Pump does not switch on Supply problem - high voltage condition occurred.	PRESSUREWATCHER® will reset within 10 seconds after supply is rectified. If the condition persists, contact power company, supplier or installer.
	Motor/Pump does not switch on Supply problem - low voltage condition occurred.	PRESSUREWATCHER® will reset within 10 seconds after supply is rectified. If the condition persists, contact power company, supplier or installer.

Status Indication	Condition/Status	Remedy/Action
	Motor/Pump runs for less than 5 minutes and stands for more than 60 minutes	Too much water is being pumped - reduce pump flow rate partially closing discharge valve.
	Motor/Pump does not switch on within 60 minutes	Contact supplier. PRESSUREWATCHER® does not function correctly.
	Motor/Pump runs for less than 5 minutes after installation and the water level in borehole/tank is sufficient	Pump is operating against a shut valve or heavy flow restriction (almost no flow) remove flow restriction or reduce flow when pumping.
	Pump is on for more than 5 minutes and off for less than 60 minutes	Pump rotation wrong - check wiring. Frequent occurrence of this condition - the borehole cannot deliver the required flow rate. Reset time varies between 5 to 60 minutes to ensure maximum water delivery from a weak well. PRESSUREWATCHER® expert system calculates optimal on/off times. To maintain optimal on/off time, do not switch mains on/off. Record on/off times and contact installer. Unit run time was longer before - operating conditions may have changed or water level in borehole has changed. Use current clamp to confirm new working conditions and reprogramme field pre-set point. Refer to setting instruction above.

WARNING:

Installation and maintenance work should only be carried out by technically qualified personnel. Serious or fatal injury could result from tampering by unqualified personnel.

Status Indication	Condition/Status	Remedy/Action
 OVER SET POINT	Motor/Pump does not switch on and/or conditions occurs all the time PRESSUREWATCHER® will reset in approximately 15 minutes	Pump locked up – debris may have entered the pump. Remove motor/pump from the borehole and clean. Cable damaged – drop cable may have been damaged. Remove pump and check cable for damage. If pumping does not restart in 20 min, or if the problem persists, contact installer or supplier. Unit operated correctly before – operating conditions may have changed. Use current clamp to confirm new working conditions and reprogrammed pre-set point. Refer to setting instruction above.
 RAPID CYCLING	Motor/Pump does not switch on No user intervention will restart the pump/motor. Do not switch mains power supply on/off. PRESSUREWATCHER® will reset within 3 minutes. PRESSUREWATCHER® does not reset within 3 minutes	Motor/Pump is switching on too often or is running for very short periods – continuous rapid cycling and excessive motor thermal cycling can be caused by a waterlogged tank, faulty contacts, faulty pressure switch, supply problem or a system fault. Check pressure tank charge level or bladder for damage. Check for faulty wiring. Check for intermittent mains supply. Switch power off and on after 5 minutes. Contact installer or supplier if condition remains. No serviceable internal parts.
 REQUIRES SETTING	Motor/Pump does not switch on or switches off unexpectedly.	PRESSUREWATCHER® requires pre-setting. Unit has not been pre-set. Refer to setting instructions above.

READ THIS MANUAL CAREFULLY BEFORE ATTEMPTING INSTALLATION

- Have you purchased the correct model, suitable for the pump/motor your purchased?
- Have you selected the correct capacitor for a single phase motor, if required?
- Do you have a multimeter to be used during installation?

Contact www.apricus-aqua.com for assistance or advise.

APRICUS-aqua

PRESSUREWATCHER

For assistance or advise contact:

sales@apricus-aqua.com

www.apricus-aqua.com

