Installation and Operation Manual

DPC1-CIRC1.1

Conventions used in this manual.

In the manual the following symbols will be used:

⚠ Generic danger. Failure to comply with the safety regulations that follow can irreparably damage the controller or equipment.

⚡ Electric shock risk. Failure to comply with the safety regulations that follow can cause death or serious injury.

WARNINGS

Read this manual carefully before any operation.

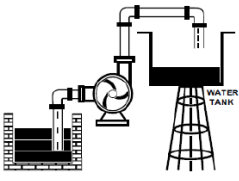Please keep this manual for future use.

⚡ WARNING!!

1. Installation must be carried out by a suitably qualified electrician.
2. Before carrying out any installation or maintenance operation, controller must be disconnected from the power supply.
3. Do not open the cover during running the controller.
4. Do not splash water or other liquid over the controller.
5. Do not allow children or infirm persons to operate the control.
6. Qualified electrician is to correctly size and install circuit breakers to protect power supply.

⚠ CAUTION!!

1. The electrical and hydraulic connections must be carried out by competent, skilled, qualified personnel.
2. Never connect AC power to the output terminals.
3. Ensure the pump and controller characteristics match.
4. Do not install the controller in the following conditions:
   a. Vibration and mechanical shock.
   b. Corrosive gasses and liquids.
   c. Extreme heat and cold, operating range -25°C - +55°C.
   d. Salt mist corrosion.
   e. Rain and moisture.
   f. Flammable materials, solvents.

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1.0 Introduction

Thank you for choosing a Bianco Icon Series Intelligent Pump Controller.

The Intelligent Pump Controller model is an easy to use, programmable controlling and protection device for direct start, single phase circulator pumps with output power from 50W – 300W.

Important features that distinguish the Bianco Icon Series Intelligent Pump Controllers from some other controllers are the push button calibration of overload and ability for dry run protection without float switches or probes.

1.1 Technical parameters and features

- Dry run protection
- Auto/Manual switch
- Dynamic LCD displaying pump running state
- Protection against many faults
- Push button calibration
- Pump accumulative running time
- Last five fault record
- RS485 communication
- In-built timer to share pump duty
- Ability to disable a pump.

Main installation data

Working temperature	-25 to +55 deg C
Working humidity	20% to 90% Relative Humidity, non-condensing
Degree of protection	IP54
Install position	Vertical
Unit dimensions (L x W x H)	30.2 x 24.0 x 12.0 cm

RS485 technical data

Physical interface	RS485 Bus Interface: asynchronous semi duplex
Baud rate	1200,2400,4800,9600 bps (default 9600bps)
Protocol type	MODBUS protocol (RTU)

1.2 Meanings of the icons shown on the LCD.

| Icon	Meaning / Description
⚙	pump parameter configuration icon, when this icon appears, pump control box is parameter setting
🕐	time displaying icon, when this icon appears, it means pump control box is displaying some parameter of time, eg: pump accumulated running time (unit: hour); counting down etc
⚒	pump fault icon, when this icon appears, it means pump control box is displaying some fault information
🖥 ON LINE	network connection error icon, when this icon appears, it means there is no network connections or network connection error between pump control box and SC (slave controller) or computer
🖥 ON LINE	network normal connection icon, when this icon appears, it means the network connection between pump control box and SC (slave controller) or computer is normal
V	voltage
M	minute
S	second
H	hour
%	percent
A	ampere
🌀	pump running
◎	pump stopped
⌀	low pressure or lack of pressure in the pipeline or pressure tank
⌀	high pressure or full of pressure in the pipeline or pressure tank
A	pump A
B	pump B (for dual pump controllers)

voltage displaying area

fault displaying area

ampere displaying area

pump running status displaying area
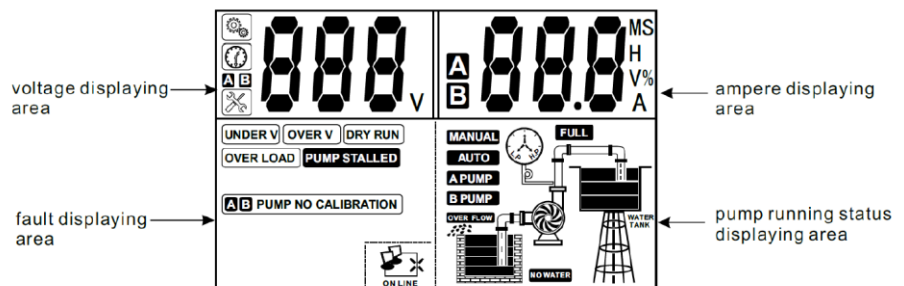
2.0 Installation – TRANSFER HOT WATER CIRCULATION

2.1 Electrical connection to the power supply and pump
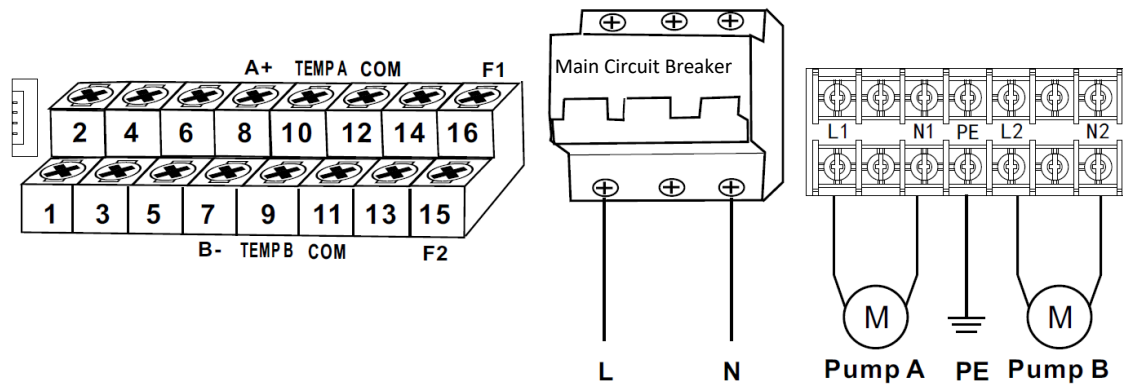
⚡ DANGER. Electric shock risk.

Before carrying out any installation or maintenance operation, the control panel should be disconnected from the power supply and one should wait at least 2 minutes before opening the control panel.

⚡ Never connect AC power to output L and N terminals.

⚠ Ensure the motor, controller and power specifications match.

⚠ The electrical and hydraulic connections must be carried out by competent, skilled, qualified personnel.
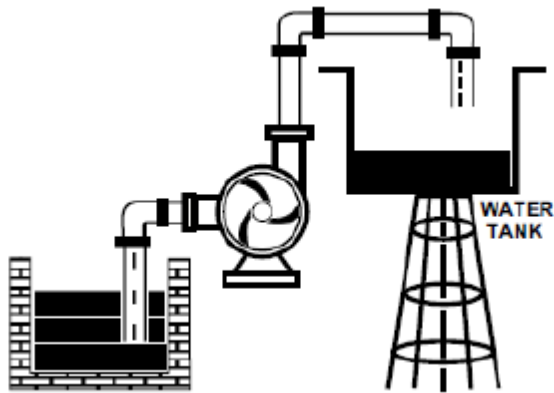
2.2 Function switch setting – TRANSFER HOT WATER CIRCULATION

Installers can set the function switch to meet different applications. Before setting the function switch, the control panel should be disconnected from the power supply.

After completing the setting, apply power to the control panel and observe the application sign displayed on the LCD conforming to the TRANSFER symbol.
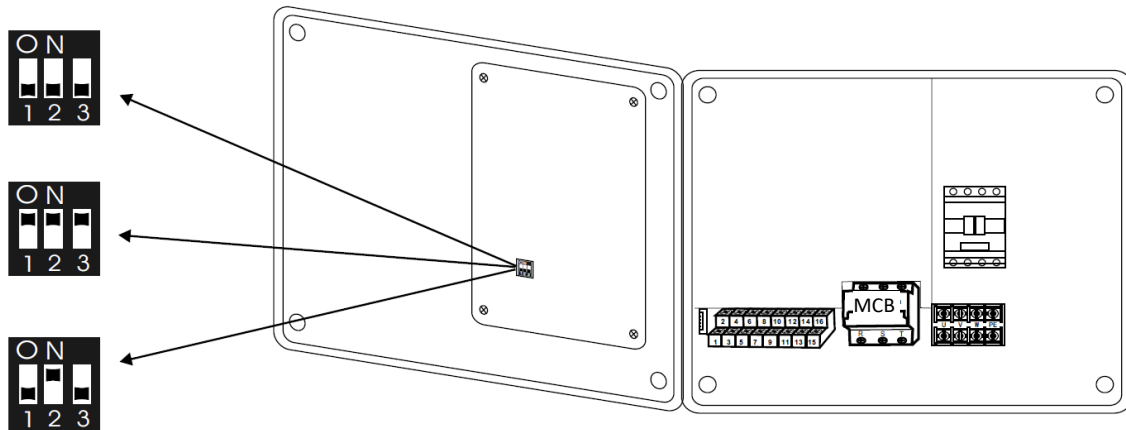
TRANSFER SETTING FOR
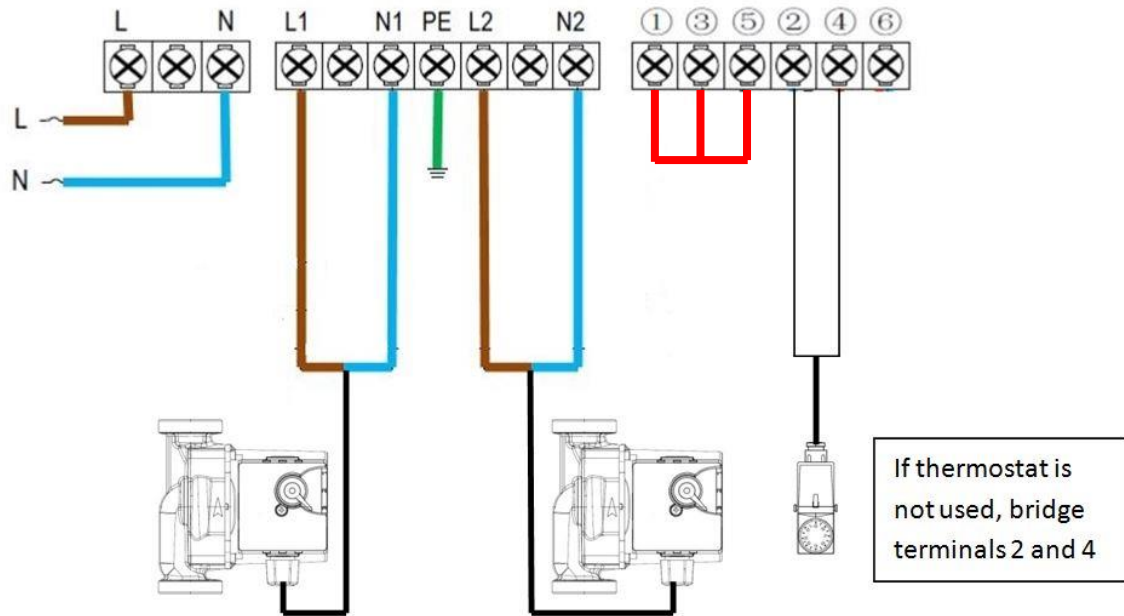HOT WATER CIRCULATION   TRANSFER SYMBOL

2.3 Electrical connections for TRANSFER HOT WATER CIRCULATION applications.

Hot Water Circulation with or without thermostat.

If thermostat is not used, bridge terminals 2 and 4

The control panel alternates power supply between pumps every 240 hours. A thermostat can be wired to terminals 2 and 4 for automatic operation on temperature.

3.0 OPERATION

**3.1 BEFORE YOU START** – **Parameter calibration and erasing.**

To achieve best level of protection of the pump, it is essential that parameter calibration be done immediately after successful pump installation or pump maintenance.

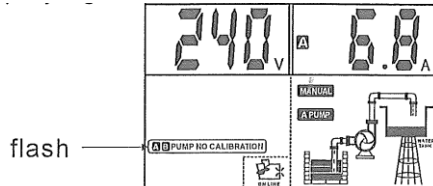**Setting the parameter calibration.**

Pump/s must be able to pump water to enable correct calibration. If pumps are calibrated without water, overload and pump stalled errors may occur later.

If calibration is required without water, please contact White International for advice.

Press the **MODE** key to switch to manual state. If the control panel is locked press **MODE** and **STORE** keys at the same time to unlock and go into manual mode. Make sure that the pump is not running and LCD screen is
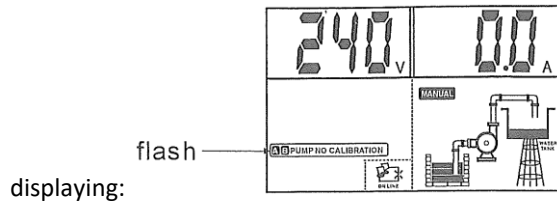
displaying:

Press the **A START** key to run pump A, confirm the pump and all pipe network is in normal working state (including voltage, amps etc) with LCD screen displaying:

Press the **STORE** button. The control panel makes a "beep" and a countdown starts with the LCD displaying:

   Control now counts down from 5 seconds.

The pump stops running and parameter calibration is completed with LCD displaying:

Press the **B START** key to repeat calibration for pump B.

Erasing former parameter. When pump is reinstalled after maintenance or a new pump is installed, user must erase the former calibration and a new calibration must be done.
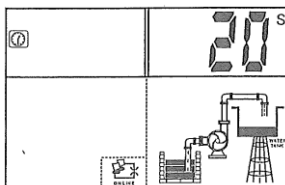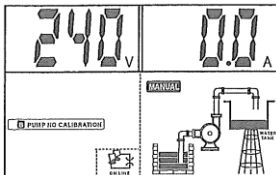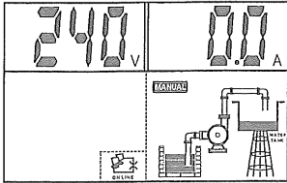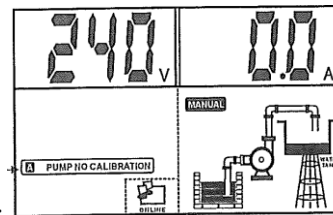
Erasing the parameter calibration.

Press the **MODE** key to switch to manual state. If the control panel is locked press **MODE** and **STORE** keys at the same time to unlock and go into manual mode. Make sure the pump is not running and LCD is displaying:

Press the **A STOP** key for 30 seconds; the control panel makes a "beep" sound, and the control panel recovers

the default factory setting and the LCD displays: with Pump No Calibration flashing.

Repeat for pump B by using the **B STOP** key for 30 seconds.

3.2 Switching to AUTO mode.

To switch between MANUAL and AUTO mode press **MODE**. AUTO mode automatically locks control panel. Under auto state the control panel will run or stop the pump according to the signal from the liquid level probe or float switch.

Note: under auto state, if the pump is running and user wants to stop the pump, press the **MODE** key to switch to manual state and the pump stops.

Note: under auto state, if the input power is cut off and the recovers, the control panel will enter operating state after 10 seconds countdown

Note: no matter if the control panels is under auto or manual state, if the input power is cut of and recovers again, the control panel will resume its operation in the same state as before the power being cut off.

3.3 Switching to MANUAL mode.

To switch between AUTO and MANUAL model press **MODE** and **STORE** keys at the same time to unlock and go into MANUAL mode. Press the **START** key to start the pump and the **STOP** to stop the pump.

3.4 Alarm Test and Mute.

Under MANUAL mode and pump/s not operating press **STORE** for 3 seconds to test the alarm.
At any time press **ASTOP** to mute the alarm.

3.5 Pump Protection

During pump running, if dry run, overload, over voltage, etc failures occur, the control panel will immediately shut down the pump running and automatically execute a check for restarting conditions after a built in time delay has elapsed. The control panel will not recover automatically until all the abnormal situations have been cleared.

If pump stalled, open phase or other serious failure has occurred, pump user must immediately check pump and motor.

3.6 Last five failure record

The control panel can memorize the last five failures of pump, so it is very convenient for the users to analyse the pump running conditions.

Displaying the last five failure record.

Press the **MODE** key to switch to manual state, make sure the pump is not running and the LCD screen is displaying:
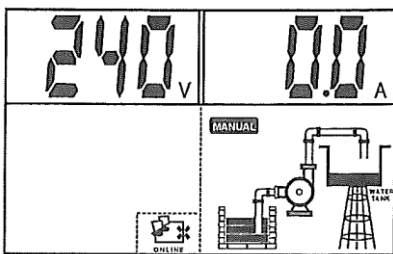
Hold pressing **A STOP** key and press **MODE** key, the control panel makes a "beep" sound and displays pump A failure record.

Press the **A STOP** key to quit the failure record display;

Note: the failure displayed above is PUMP STALLED.

Repeat for pump B by using **B STOP** key.

3.7 Pump accumulative running time

The control panel can memorise how many hours of pump running, so it is very convenient for the pump user to analyse the pump running conditions and do maintenance.
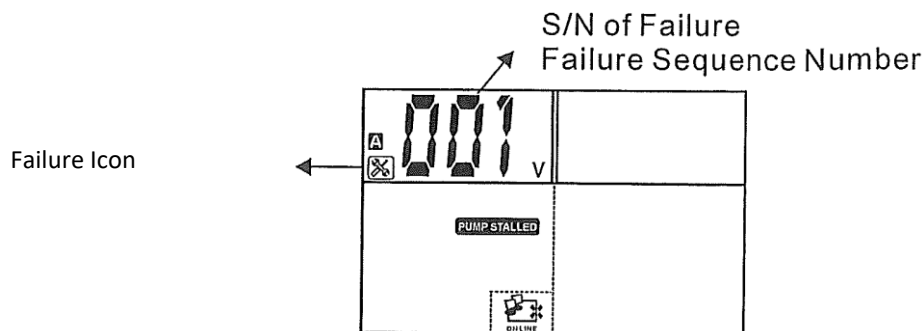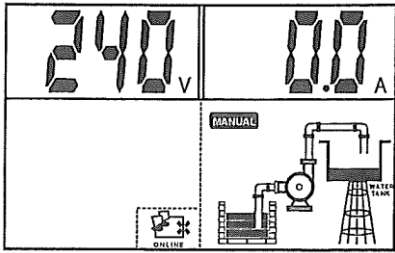
Displaying the pump accumulative running time.

Press the **MODE** key to switch to manual state, make sure that the pump is not running and the LCD screen is displaying:

Hold pressing the **STORE** key and press the **A STOP** key. The control panel makes a "beep" sound and displays the accumulative run time.
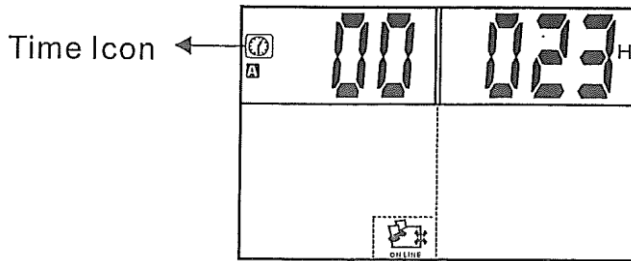
The pump has run for 23 hours.

Press the **A STOP** key to quit the accumulative running time display.

Repeat for pump B by using **B STOP** key.

3.8 Pump disable.

To disable a pump independently press **A STOP** or **B STOP** and **MODE** at the same time.

4.0 Communication link.

The control panel has communication interface, that along with the optional Slave Controller, users can realise a long distance monitoring function.

This function applies to where the control panel is installed in the basement or pumping room, but users require to monitor and control the pump on the ground or in a control room.
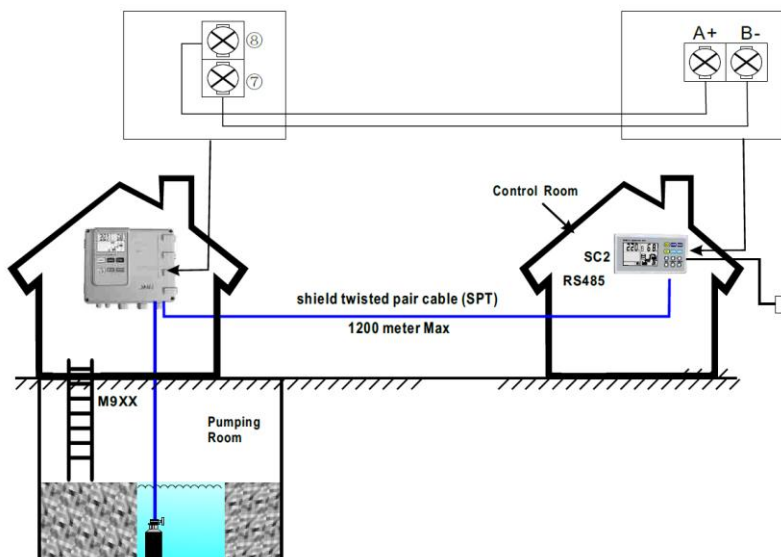
4.1 Basic function.
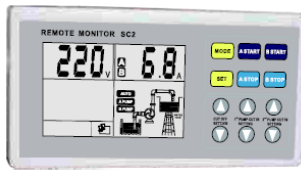
Slave Controller (SC) with communication interface can realize long distance monitoring. In the control room, users can realize all the functions of the master control panel through the SC, except parameter calibration and adjusting.

4.2 Special application.

As adopting communication interface, the wire communication distance is less than 1200 metres. For those installation environments which require a longer distance communication, i.e., mine, water tower, across railway road and bridge etc., users can adopt RS485 extender, wireless communication or GSM. Please contact the manufacturer for more information.

4.3 Technical parameters.

The following chart shows main technical parameters of communication between the control panel and the slave controller.

Main technical data	
Physical interface	RS485 Bus Interface: asynchronous semi duplex
Data format	1 start bit, 8 data bit, 1 stop bit, no verify
	1 start bit, 8 data bit, 2 stop bit, no verify
	Default: 1 start bit, 8 data bit, 1 stop bit, no verify
Baud rate	1200,2400,4800,9600 bps (default 9600bps)
Communication address	Setting range of controller address: 1-126
	127: broadcast address, host computer broadcasting,
	slave machine response forbidden
Protocol type	MODBUS protocol (RTU)
Rated input voltage for SC	AC 240V/50Hz, single phase
Main installation data	
Wire communication distance	1200 metres max by shield twisted pair cable (STP) for RS485 & CAN
	5000 metres max by STP and RS485 extender
STP	STP-120U one pair 20AWG for RS485 & CAN
RS485 extender	5000 metres (9600bps)

5.0 Trouble shooting guide

Fault Message	Possible Cause	Solutions
flashing of **UNDER V**	the real running voltage is lower than the calibrated voltage, pump is in under voltage protection state	report low line voltage to the power supply company
		Control will attempt to restart the pump every
		5 min until line voltage is restored to normal
flashing of **OVER V**	the real running voltage is higher than the calibrated voltage, pump is in over voltage protection state	report low line voltage to the power supply company
		Control will attempt to restart the pump every
		5 min until line voltage is restored to normal
flashing of **OVER LOAD**	the real running ampere is higher than the calibrated running ampere, pump is in over load protection state	Control will attempt to restart the pump every 30 min until running ampere is restored to normal
	pump damaged	inspect pump
flashing of **PUMP NO CALIBRATION**	parameter calibration not completed	refer to parameter calibration setting
flashing of **DRY RUN**	Pump has run out of water	Control will attempt to restart the pump every 30 min
flashing of **PUMP STALLED**	pump running amps exceeded normal rum amps by more than 200%	cut off power supply and repair or replace pump
flashing of **REPEATED START**	pump starts more than 5 times per minute	Check thermostat settings if fitted
 ON LINE	no communication link between SC / computer and Control	connect the Control to SC / computer to realize long distance monitoring

WHITE INTERNATIONAL 2 YEAR WARRANTY

White International Pty Ltd
Limited Product Warranties
TERMS & CONDITIONS
This warranty is given in addition to the consumer guarantees found within the Australian Competition and Consumer Act 2010 (Cth) for goods purchased in Australia and the Consumer Guarantees Act 1993 NZ for goods purchased in New Zealand:

1) White International Pty Ltd / White International NZ Ltd (White International) warrant that all products distributed are free from defects in workmanship and materials, for their provided warranty period as indicated on the top or opposite side of this document. Subject to the conditions of the warranty, White International will repair any defective products free of charge at the premises of our authorised service agents throughout Australia and New Zealand if a defect in the product appears during the warranty period. If you believe that you have purchased a defective product and wish to make a claim under this warranty, contact us on our Sales Hotline on 1300 783 601, or send your claim to our postal address or fax line below and we will advise you as to how next to proceed. You will be required to supply a copy of your proof of purchase to make a claim under this warranty.

2) This warranty excludes transportation costs to and from White International or its appointed service agents and excludes defects due to non-compliance with installation instructions, neglect or misuse, inadequate protection against the elements, low voltage or use or operation for purposes other than those for which they were designed. For further information regarding the suitability of your intended application contact us on our Sales Hotline on 1300 783 601. If you make an invalid claim under this warranty, the original product will be sent back to you unrepaired.

3) This warranty refers only to products sold after the 1st January 2012, and is not transferable to another product type and only applies to the original owner, purchaser or end user, and is in addition to the consumer guarantees found within the Competition and Consumer Act 2010 (Cth) for goods purchased in Australia and the Consumer Guarantees Act 1993 (NZ) for goods purchased in New Zealand.

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EMAIL: General Info Enquiries: sales@whiteint.co.nz

4) Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

5) To the fullest extent permitted by law, White International excludes its liability for all other conditions or warranties which would or might otherwise be implied at law. To the fullest extent permitted by law, White International's liability under this warranty and any other conditions, guarantees or warranties at law that cannot be excluded, including those in the Competition and Consumer Act 2010 (Cth), is expressly limited to:

(a) in the case of products, the replacement of the product or the supply of equivalent product, the payment of the cost of replacing the product or of acquiring an equivalent product or the repair of the product or payment of the cost of having the product repaired, is at the discretion of White International or a 3rd party tribunal elected under the Competition and Consumer Act 2010 (Cth) for goods purchased in Australia and the Consumer Guarantees Act 1993 (NZ) for goods purchased in New Zealand; and

6) To the fullest extent permitted by law, this warranty supersedes all other warranties attached to the product or its packaging.

7) In the case of services, supplying the services again or the payment of the cost of having the services supplied again, is at the discretion of White International or a 3rd party tribunal elected under the Competition and Consumer At 2010 (Cth) for goods purchased in Australia and the Consumer Guarantees Act 1993 (NZ) for goods purchased in New Zealand.

8) Our warranty commences from the date of purchase of the above mentioned pumps. Proof of purchase is required before consideration under warranty is given. Record your date of purchase in the space below and retain this copy for your records.

Date of Purchase ....

Model Purchased ....

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