

# ICON SERIES PUMPS

## Intelligent Constant Pressure Pumps

### User Manual

IBHM3-6, IBHM5-5





## PREFACE

Thank you for choosing ICON SERIES PUMP. This inverter Booster Pump is produced to best serve your purposes when using a Booster Pump System.

For best results, please read through this user manual to become familiar with the features and operations of the ICON SERIES PUMP.

The ICON SERIES PUMP uses a B602S PID control which provides Variable Speed Control and Booster Pump Control together.

### Features:

- Constant water pressure.
- Optimises pump performance.
- Soft start, low motor start current.
- No large pressure tank required.

### Protection:

- Dry run protection.
- High and low water pressure protection.
- Frost protection.
- Sensor fault protection.

### Conformity:

- Verification of EMC compliance certificate no. AC/0410709 to EN 61326-1:2006, EN 61000-3-2:2005, EN 61000-3-3:1995+A1:2001+A2:2005.
- Verification of LVD compliance certificate no. AC/0420709 to EN 61010-1:2001.

## SAFETY PRECAUTIONS

ICON SERIES PUMP is a new power electronic product, please read the operation manual carefully before using to keep your safety and make sure proper operation.

In this manual, the safety precautions were sorted to “WARNING” and “CAUTION”.



**WARNING:** Incorrect use may result in death or serious personal injury.



**CAUTION:** Incorrect use may result in the damage of controller or system.



### WARNING

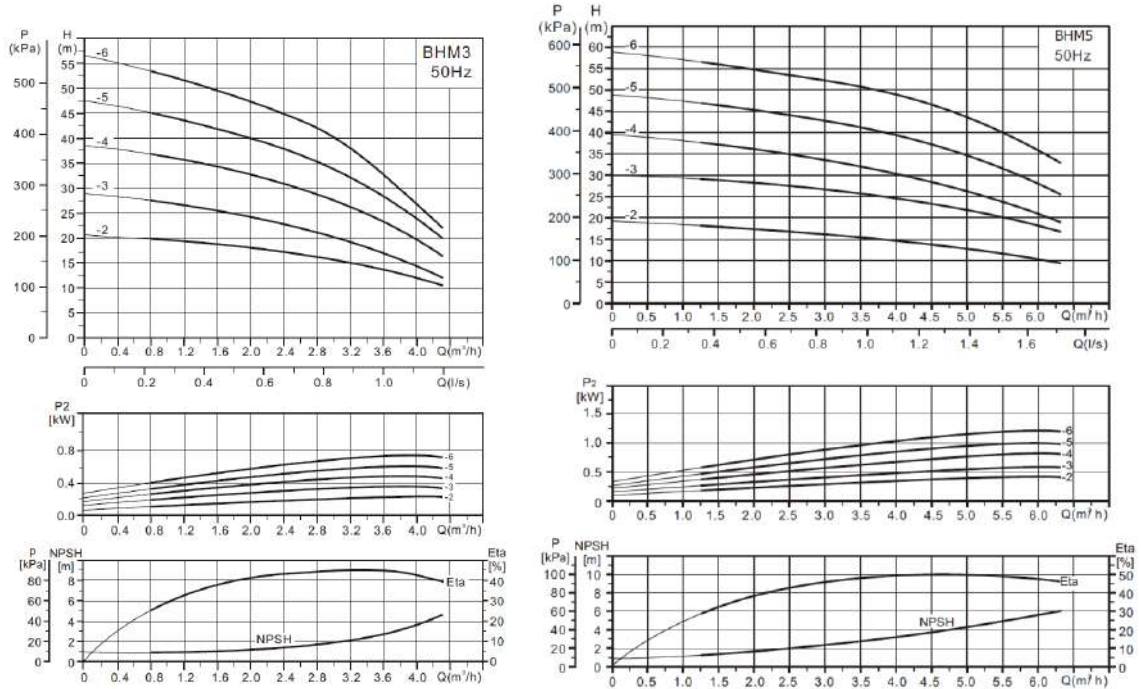
- Do not dismantle or change the product, which may cause electric shock, fire hazard and personal injury.
- Do not open the cover during the running of controller. Disconnect power and allow 5 minutes for the internal capacitors to discharge dangerous internal voltage before working on controller and pump.
- Ensure that the controller along with the pump as well as metal in proximity are adequately earthed.
- Do not put wire, metal bar, filaments etc. into the controller as to cause a short circuit or get an electric shock.
- Do not splash water or other liquid over the controller.



### CAUTION

- The controller and pump should be installed by suitably qualified technical personnel, and failure to install in compliance with local standards may result in poor performance, equipment damage, fire and electrical shock.
- Do not perform high voltage insulation testing on the controller.
- Never connect AC power to output UVW terminals.
- The motor, controller and power specifications should be matching, otherwise it could cause abnormal operation and damage the equipment.
- If the controller or pump has serious vibration, noise, heat or peculiar smell in the first operation, please cut off the power immediately and contact customer service.
- Do not install the controller and pump in an environment with direct sunlight, rain, dust, frost or snow.
- The ICON SERIES PUMPS are not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.
- Children should be supervised to ensure that they do not play with the pump.

**Performance Curves:**

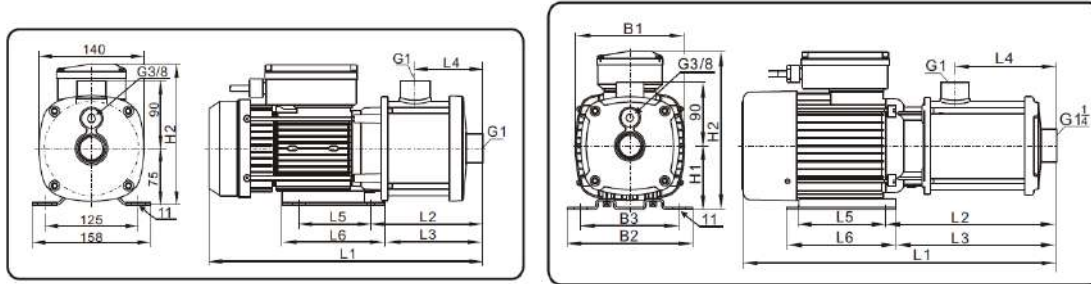


Model	Driving motor P2(kW)	0.8	1.2	1.6	2.0	2.4	2.8	3.0	3.2	3.6	4.0
BHM3-2(T)	0.25	19.5	19	18.5	18	17	16.5	15	14.5	13.5	12
BHM3-3(T)	0.37	27	26	25	24	23	22	21	20	17	15
BHM3-4(T)	0.55	36	35	34	32	31	29	28	27	23	20
BHM3-5(T)	0.55	44	43	42	40	38	36	34	33	28.5	24
BHM3-6(T)	0.75	53	51.5	48	47	45	41	38	36	31.5	27

Model	Driving motor P2(kW)	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0
BHM5-2(T)	0.37	18.5	18	17.5	17	16	15.5	15	13.5	13	11	10
BHM5-3(T)	0.55	29	28.5	28	27	26.5	25.5	25	23	22	20	18
BHM5-4(T)	0.75	38	37	36	34	33.5	32	30	28	27	24	20
BHM5-5(T)	1.0	47	46	45	44	42.5	41	40	36	35	32	27
BHM5-6(T)	1.3	56.5	55	54	53	52.5	51	49	45	44	42	36

ICON PUMPS are BHM3-6T or BHM5-5T

**Dimensions:**



Model	Size (mm)							
	H2		L1	L2	L3	L4	L5	L6
	Single-phase	Three-phase						
BHM3-2(T)	187	174	318	131	113	72	96	136
BHM3-3(T)	187	174	318	131	113	72	96	136
BHM3-4(T)	187	174	365	149	131	90	96	136
BHM3-5(T)	187	174	383	167	143	108	96	136
BHM3-6(T)	200	188	416	203	179	144	96	155

Model	Size (mm)											
	B1	B2	B3	H1	H2		L1	L2	L3	L4	L5	L6
					Single-phase	Three-phase						
BHM5-2(T)	140	158	125	75	187	174	318	131	113	72	96	136
BHM5-3(T)	140	158	125	75	187	174	347	131	113	72	96	136
BHM5-4(T)	140	158	125	75	200	188	362	149	125	90	96	155
BHM5-5(T)	140	158	125	75	200	188	380	167	143	108	96	155
BHM5-6(T)	155	178	140	90	224	211	446	243	228	144	125	155

Note. Dimensions shown are less ICON inverter module, 8 litre pressure tank and 3 way tee.

**Installation:**

The ICON SERIES PUMP is designed for indoor use. If installation is required in outdoor areas, then facilities need to be provided to protect the pump from the elements including rain, wind, sun and high and low temperatures.

It is advisable that installation be carried out by skilled personnel having the technical qualifications and understanding of the relevant electrical legislation.

Skilled personnel refer to persons who have been authorised by the person in charge of the plant safety who able to recognise and avoid all dangers as a result of their training, experience and instruction and their knowledge of the relevant standards and regulations (IEC364).

White International does not warrant the correct operation of the pumps if they are tampered with or modified, or used in a way outside the pump recommended uses.

- \* The pump must be installed in a well ventilated place protected from the elements (wind, rain, snow etc).
- \* Anchoring the pump to the ground or pump cover will help prevent unwanted movement of the pumps due to any vibrations
- \* Install the pump as close as possible to the water source. The internal diameters of the pipework must not be smaller than the ports on the pump.
- \* It is advisable to install a foot valve on the suction side (water source side).
- \* To prevent air pockets (air locking), and if the pump is installed at a higher level than the water source, the suction hose on the pump must continually slope upwards towards the pump.
- \* Pipe work and pipe connections should be free from leaks.
- \* Pipe work should be supported separately.

## Inverter Control.

Inverter screen



1.Status LED

Shows the operation status of the pump.

2.LCD display

Briefly displays information related to the system.

3.Control key board

Used when setting/checking information related to the system.

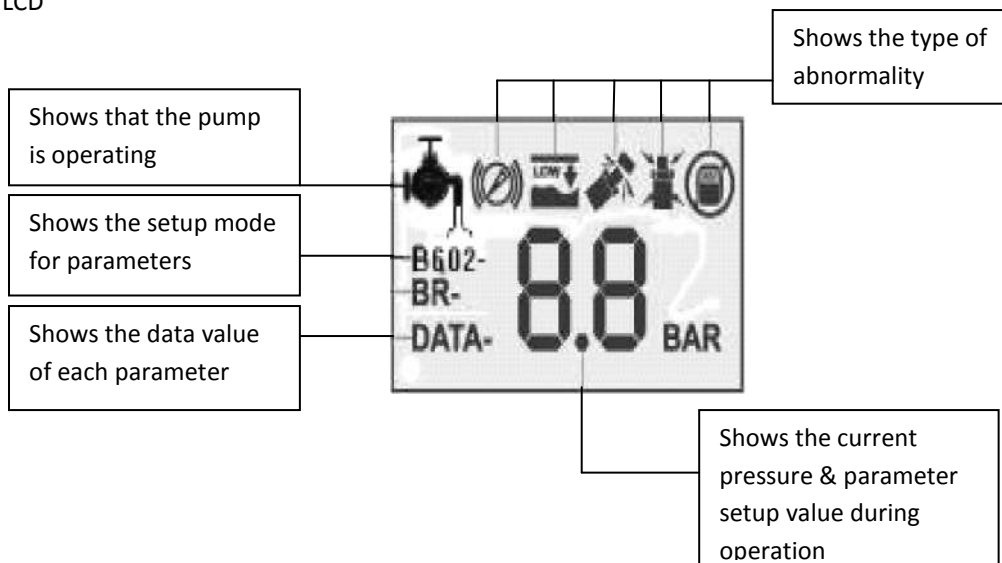
### LED

**RUN** Shows that the pump is operating.  
When the LED lamp is on, the pump is in standby mode.  
When the LED lamp blinks, the pump is currently operating.

**STOP** Shows that the system is stopped.

**FAULT** Shows that abnormality is detected from the product.  
Please refer to troubleshooting and error information.

### LCD



Keys.



Used when starting/stopping the pump. Used when exiting the parameter.



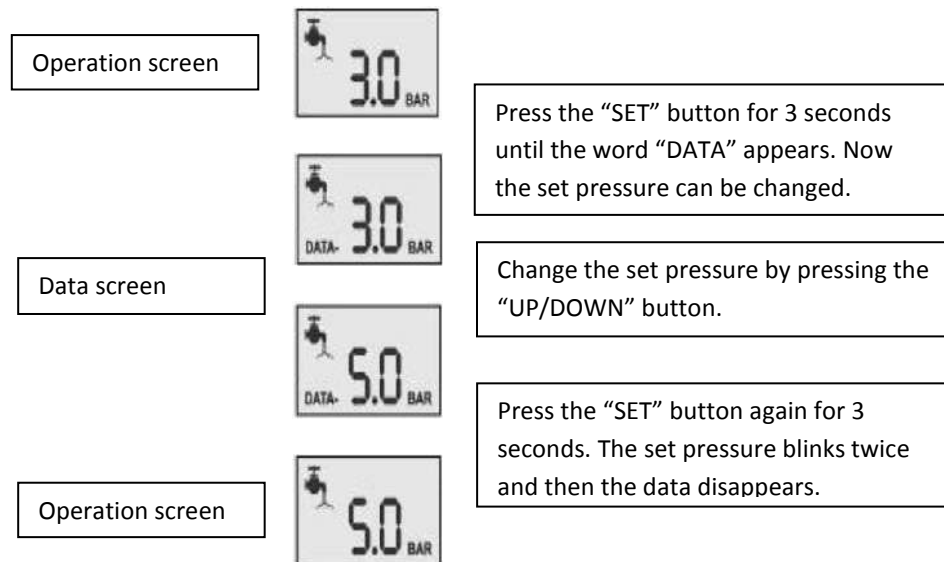
Used when changing the setup pressure and when setting data in parameter setup.



Used when entering the parameter (BR MODE).  
Used when changing the data value of parameter.

How to set the pressure.

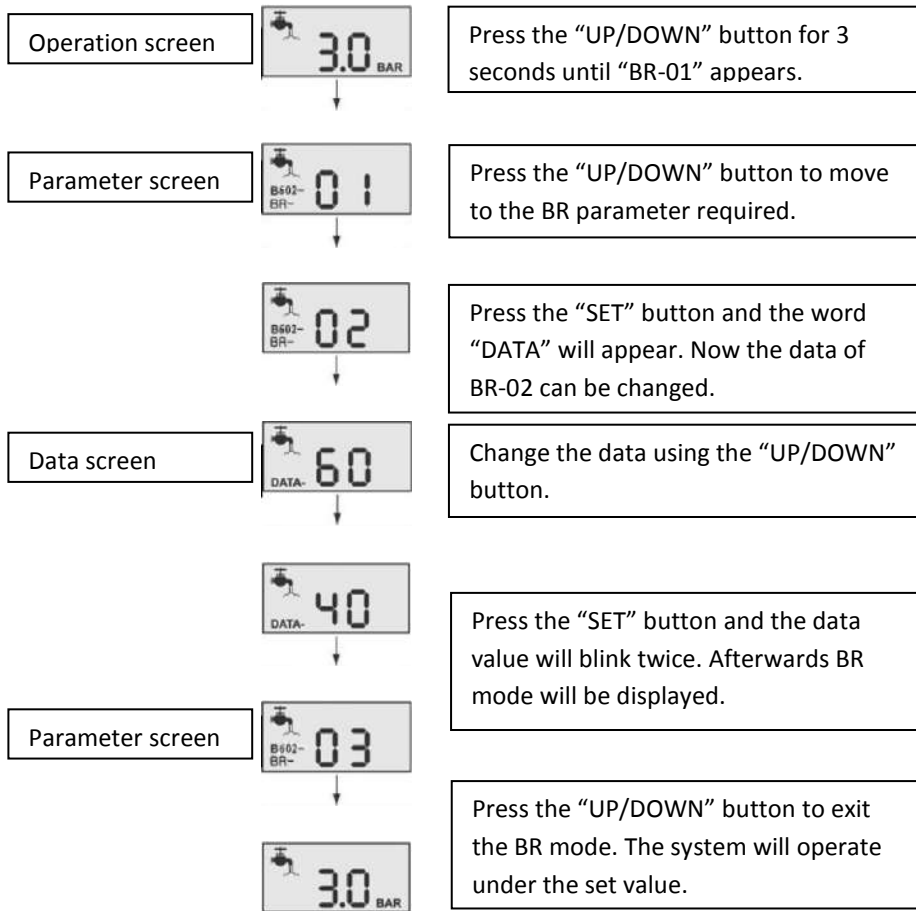
Example of how to change the set pressure from 3.0 bar to 5.0 bar.





How to set a parameter.

Example: How to change parameter BR-02 from 60 to 40.



Caution: Before setting the parameter, please refer to the parameter table to check the parameters that can and can't be changed during operation of the pump.

## Parameter Summary.

Parameter table.

No.	Parameter	Min value	Max value	Initial value	Unit	Remarks	Change during operation
BR-01	Base Frequency	50	60	50	Hz		X
BR-02	Maximum output frequency	00	80	50	Hz		X
BR-03	Minimum output frequency	00	50	30	Hz		O
BR-04	Rotating direction	00	01	00		00:Forward 01:Reverse	X
BR-05	Sensor value setup	0.0	25	10	Bar		X
BR-06	Sensor adjustment	-0.9	0.9	0.0	Bar		O
BR-07	Starting pressure drop	0.1	1.0	0.3	Bar		O
BR-08	High pressure alarm	0.0	25	7.5	Bar		O
BR-09	Low pressure alarm	0.0	10	0.5	Bar		O
BR-10	Anti-frost damage	00	99	30	Min		O
BR-11	Program initialisation	0	2	0		0:Change Available 1:Change N/A 2: Initialisation	X
BR-12	Program version						
BR-13	Alarm information	01	10	1	EA	Initialised when set	

## Parameter functions.

### BR-01 Base frequency

Base frequency is the frequency that the rated voltage of the inverter can output.

Set according to the rated frequency of the motor.

### BR-02 Maximum output frequency

Maximum output frequency is the maximum frequency that the inverter can operate.

Set value shall not exceed the frequency allowed by the motor.

### BR-03 Minimum output frequency

When the set pressure is reached and the pump stops, the pump operates under the minimum output frequency for a certain time and then stops. When the stoppage frequency is too high, the stoppage frequency will elevate. On the other hand, when the stoppage frequency is too low, operation might continue. Initial value is recommended for this setup.

### BR-04 Rotating direction

If the pump rotates in the wrong direction, the pump may stop pumping water or pump water at lower pressure, and cause noise/vibration. In such a case, change the setup for the rotating direction instead of changing the wire connection.

00: Forward rotation, 01: reverse rotation

### BR-05 Sensor value setup

To detect the operating pressure, a pressure sensor is installed in the pump outlet. This parameter sets the operating range of the sensor. The pressure sensor must have an output of 4 – 20 mA.

**BR-06 Sensor adjustment**

In case pressure deviation occurs in the sensor, or the pressure of the gauge is different from the pressure on the screen, this parameter can adjust the difference. Before changing this parameter, check the condition of the gauge.

**BR-07 Starting pressure differential**

When the pressure falls lower than the set pressure minus starting pressure differential, the pump operates. If the differential is set too low, the potential for pump cycling increases. If the differential is set too high, there may be an inconvenient delay in starting.

**BR-08 High pressure alarm**

If the current pressure is higher than the high pressure alarm value, a ( ) icon is shown on the screen and the pump stops immediately. If the current pressure drops lower than the high pressure alarm value, the icon disappears and the pump operates normally again.

**BR-09 Low pressure alarm**

If operation lasts for more than 30 seconds with the current pressure lower than the low pressure alarm value, the pump stops and a ( ) icon appears on the screen. The pump automatically restarts after 10 seconds. However, if the low pressure alarm is activated more than 10 times, it is considered that the system has a problem, and the pump does not restart again.

**BR-10 Anti frost damage function** protects the pump against the cold weather during winter time. When the set time has elapsed, the pump operates under the maximum frequency for 5 seconds, and then stops.

**BR-11 Program initialisation**

This function locks/initialises the program.

0: Change of parameters is available.

1: Change of parameters is not available.

2: Initialises the parameters to their default value.






**BR-12 Program version**

Shows the version of the program.

**BR-13 Alarm information**

The history of 10 recent alarms is recorded and saved. Check the alarm information by using the 'Up/Down' button.

**Countermeasures for errors.**

LCD Display	Name of error	Description	Countermeasure
	HIGH/LOW PRESSURE	High/low pressure alarm has been activated	Check the System
	LEVEL ALARM	Low water level alarm	Check the water supply pipe
	SENSOR OPEN	Sensor is not connected	Check the connection part of the sensor
	SENSOR SHORT	Sensor has a short circuit	Replace the sensor
	INVERTER ERROR	Inverter error	Inverter is malfunctioning. Cut off the power and contact the supplier

The system stores up to 20 lots of information related to the detection of abnormalities. To initialise the information of abnormalities saved, press the 'SET' button for more than 1 second.



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 unrepared.
- 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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**WHITE** 2 YEAR WARRANTY cont.  
INTERNATIONAL

- 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 Act 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 .....



**WHITE**  
INTERNATIONAL

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