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Attention iStore Authorised Resellers

Pool Heater Considerations

This bulletin outlines some design considerations when quoting and installing iStore pool heaters.

The heating mode range of the target temp setting is 15 ~ 35℃, the cooling mode range of the target temp setting is 8 ~ 35℃.

The size of the pool is obviously the most significant factor in the sizing and the standard sizing upon the price list is accurate. So far we are quoting for extended season only rather than year round swimming which will be considered on a case by case basis.

POOL BLANKET

The use of a pool blanket is a must and the quality seen may vary considerably, it has been noted a 6 degree heat loss in an open pool overnight whereas less than 2 degrees with a modern blanket. Proven blankets can be purchased from https://www.ebay.com.au/itm/Aquabuddy-Pool-Cover-500-Micron-Solar-Blanket-Swimming-Outdoor-Bubble-8M-X-4-2M-/392119688029

POOL PUMP CONFIGURATION

The pool pump configuration has two different styles:-

1 pump for filter and iStore

This configuration is acceptable as long as there are bypass valves to isolate the iStore when pool maintenance such as harsh chemicals or heavy pool cleaning is undertaken. The typical advantage is that the filter and low/return lines would slow the water flow rate down to an acceptable speed for heating the water when it passes thru the iStore. The down side of this configuration is that typically the system will need to operate 24 hrs per day for a number of days at the start of the season and with one system the chlorinator is also working continually and possibly over chlorinating the pool.

1 pump for filter and 1 pump for the iStore

This configuration is promoted by designers as as the chlorination function is separate to the heater and do not interfere with each other from run time perspective.

The down side of this configuration is that the speed of the pump needs to be controlled to meet the flow rates per minute as listed below. Flow rates above the recommended do not allow the water to heat when passing thru the iStore. Slowing down of the flow can be achieved in three ways, purchase the correct size pump, restrict the flow via bypass valves, or install a Variable Speed Controller.

As below you can see from the installation manual the flow rates quoted in m3/h, here I have converted it into L/min to assist with pump sizing

Model	M3/h	L/min
PASRW020-P-AE	3	50
PASRW030-P-AE	4.5	75
PASRW040-P-AE	5	83

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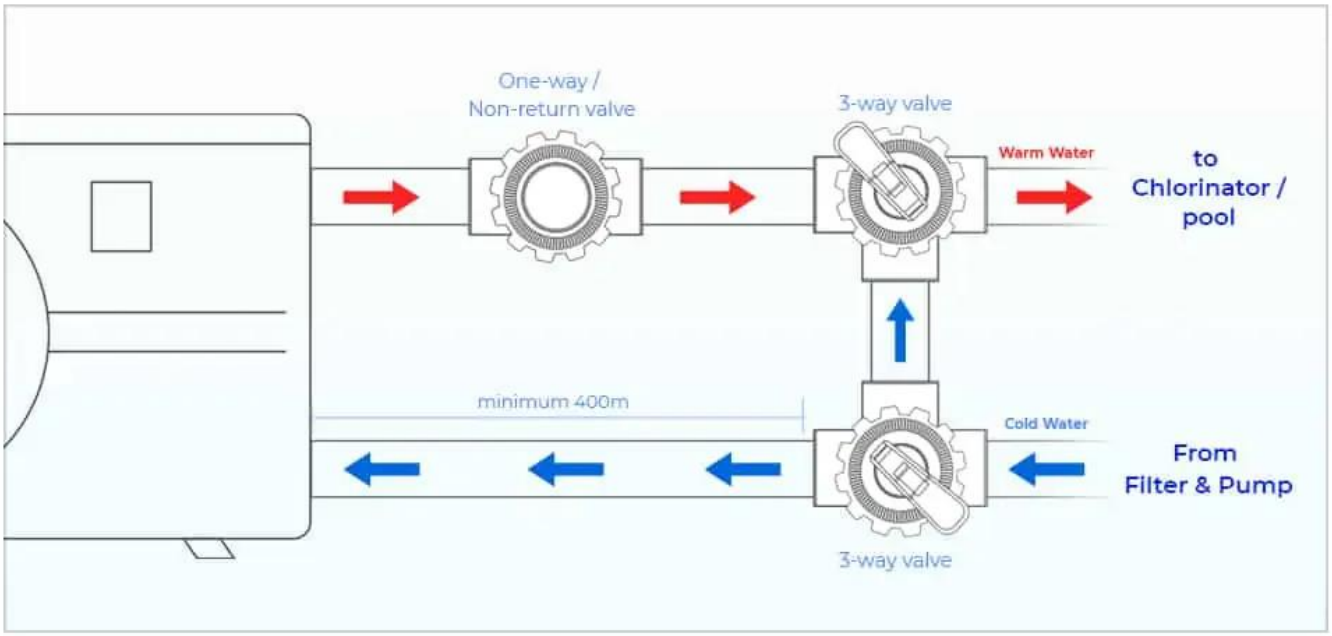
BYPASS CONFIGURATION

The bypass can be used to isolate the iStore as well as reduce water flow rate where required.



Example of Integrated System or Bypass System

FLOW AND RETURN PIPE LENGTHS

Note: Many pool companies specify a larger unit for longer runs also.

3.3 How Close To Your Pool?

Normally, the pool heat pump is installed within 7.5 metres of the pool. The longer the distance from the pool, the greater the heat loss from the piping. For the most part ,the piping is buried. Therefore, the heat loss is minimal for runs of up to15 meters(15 meters to and from the pump = 30 meters total), unless the ground is wet or the water table is high. A very rough estimate of heat loss per 30 meters is 0.6 kW-hour,(2000BTU) for every 5 ℃ difference in temperature between the pool water and the ground surrounding the pipe, which translates to about 3% to 5% increase in run time.

RETURN JETS

If the heater return jets utilise the same jets as the filtration system then it is recommended to angle the jets down in the pool to provide for better overall heating of the entire pool.

PUMP CONTROL

The iStore units can control a separate pump by wiring the supply from the iStore, below are the wiring diagrams for each model.

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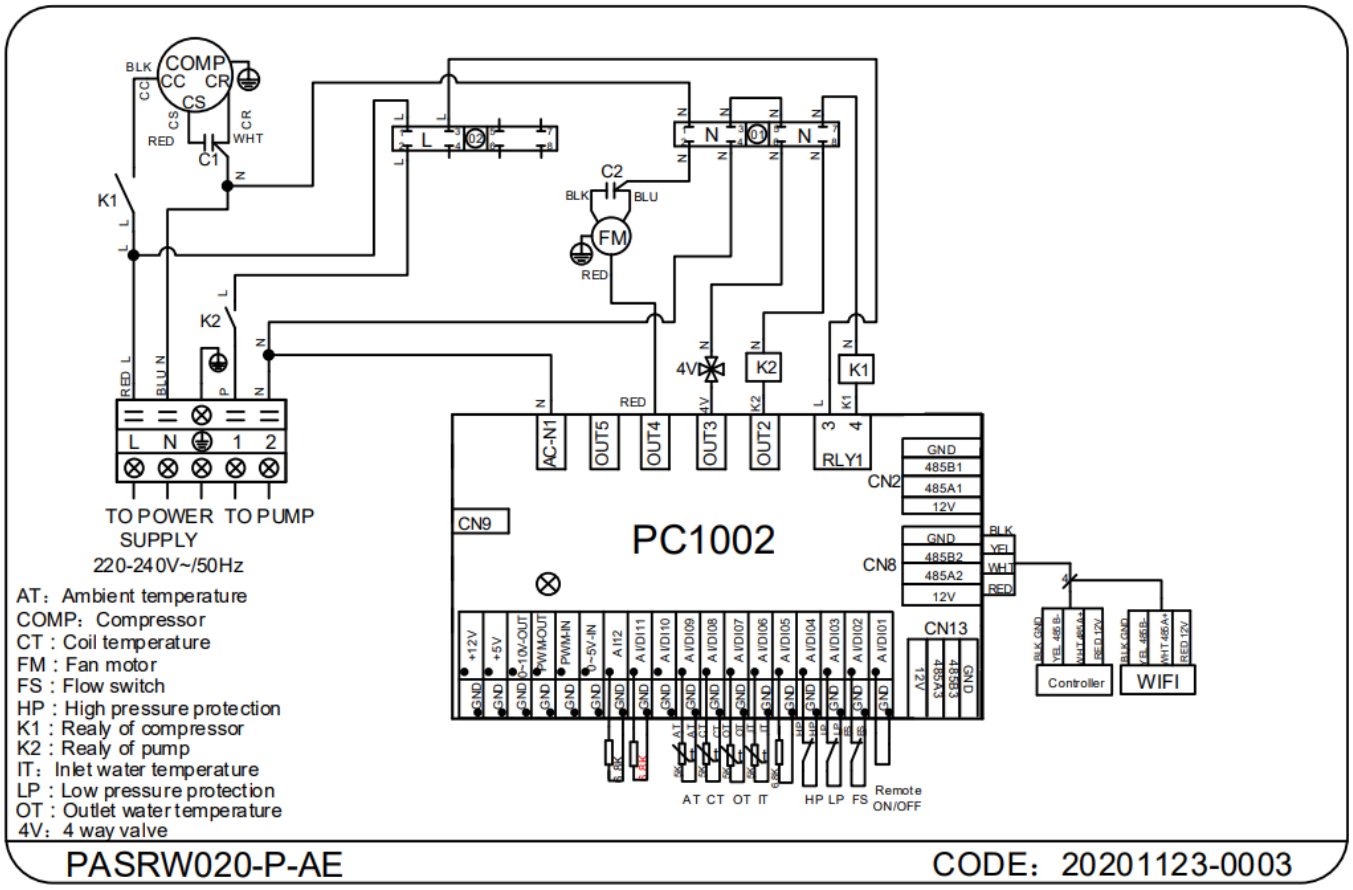

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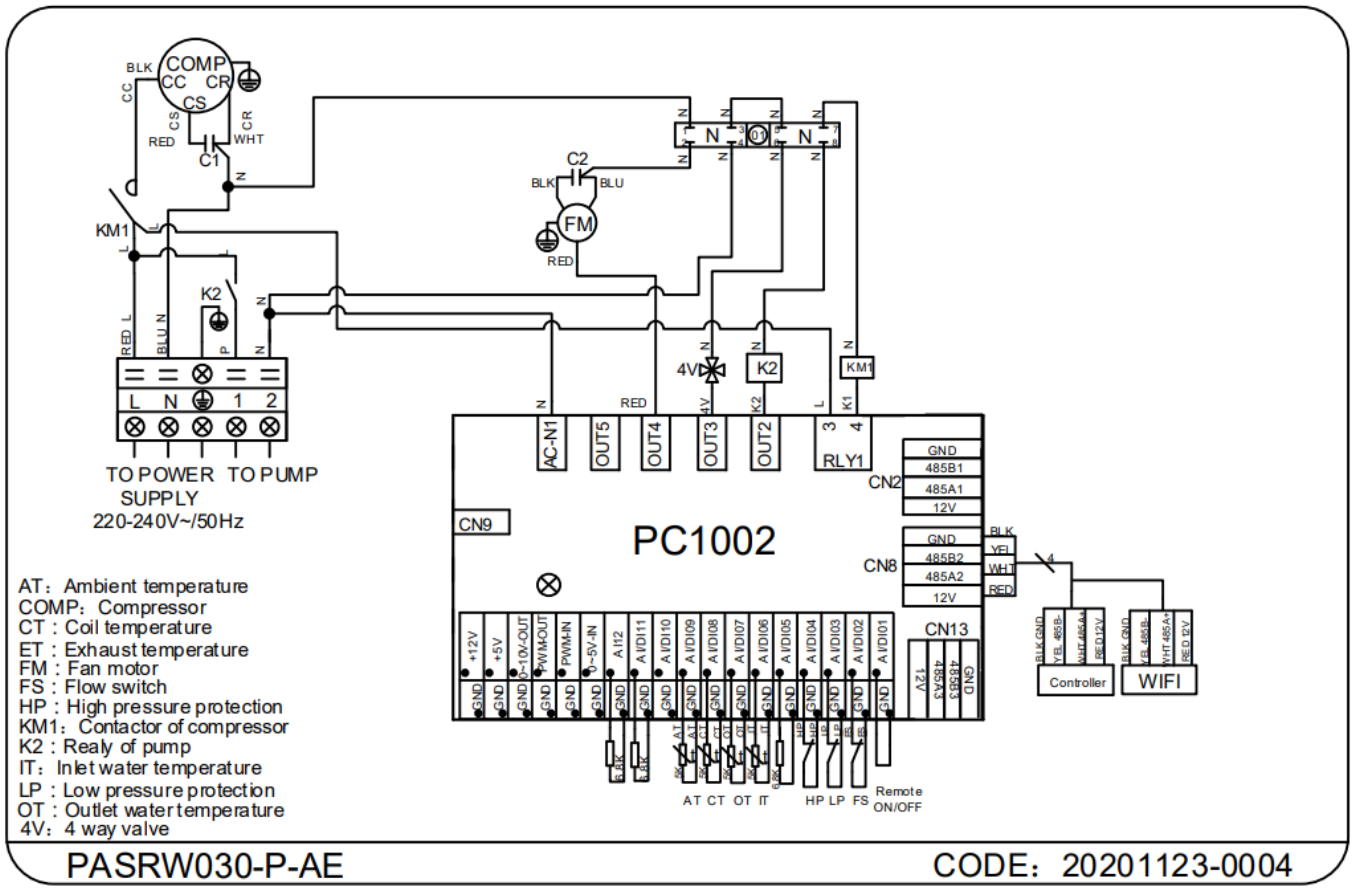

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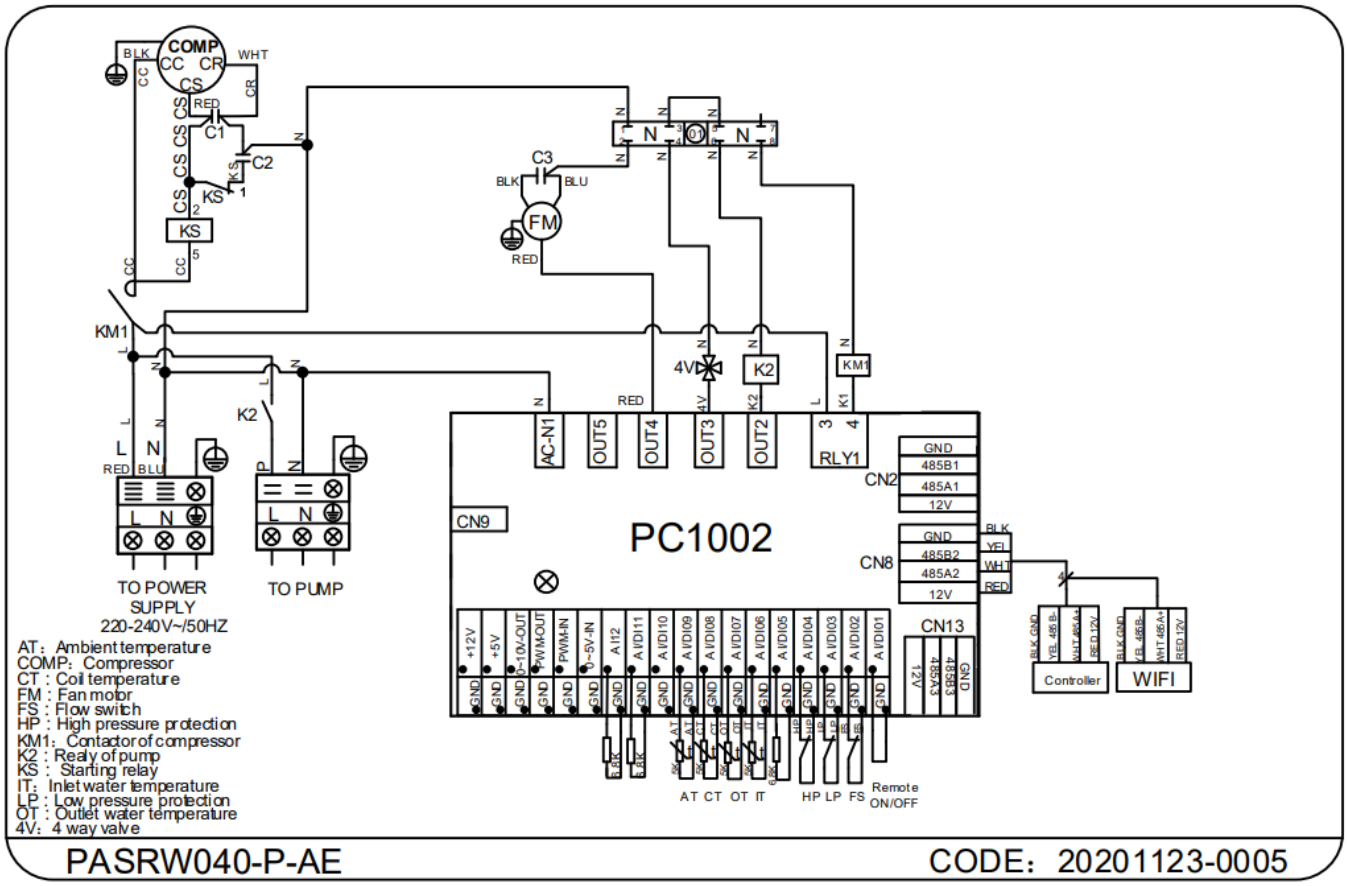

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AMBIENT TEMPERATURE EFFICIENCY

Note that the pricelist lists the performance based upon the maximum ambient heat, for cooler climates selection of a bigger unit may be required.

For example the 020 model below is rated at 8.7kw @ 27 degrees C but drops off to 7.74kw @ 24 degrees C and further to 6.01kw @ 15 degrees C

UNIT		PASRW015-P-AE	PASRW020-P-AE
Heating capacity (27/24.3℃)	kW	5.95	8.47
	Btu/h	20230	28798
Heating Power Input	kW	1.04	1.45
Running Current	A	4.8	6.5
Heating capacity (24/19℃)	kW	5.36	7.74
	Btu/h	18224	26316
Heating Power Input	kW	1.05	1.48
Running Current	A	4.9	6.6
Heating capacity (15/12℃)	kW	4.25	6.01
	Btu/h	14450	20434
Heating Power Input	kW	1.0	1.4
Running Current	A	4.6	6.3
Power Supply		220-240V~/50Hz	220-240V~/50Hz
Compressor Quantity		1	1
Compressor		rotary	rotary
Fan Number		1	1
Fan Power Input	W	90	90
Fan Rotate Speed	RPM	850	850
Fan Direction		horizontal	horizontal
Noise	dB(A)	50	52
Water Connection	mm	50	50
Water Flow Volume	m^3/h	2.3	3
Water Pressure Drop(max)	kPa	2.4	3.2
Unit Net Dimensions(L/W/H)	mm	See the drawing of the units	
Unit Ship Dimensions(L/W/H)	mm	See package lable	
Net Weight	kg	see nameplate	
Shipping Weight	kg	see package label	

Heating: Outdoor air temp: 27℃/24.3℃, Inlet water temp:26℃
Outdoor air temp: 24℃/19℃, Inlet water temp:26℃
Outdoor air temp: 15℃/12℃, Inlet water temp:26℃

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UNIT		PASRW030-P-AE	PASRW040-P-AE
Heating capacity (27/24.3℃)	kW	11.6	16.3
	Btu/h	39440	55420
Heating Power Input	kW	1.98	2.94
Running Current	A	9.1	13.5
Heating capacity (24/19℃)	kW	10	15.5
	Btu/h	34000	52700
Heating Power Input	kW	1.90	2.90
Running Current	A	8.7	13.3
Heating capacity (15/12℃)	kW	8.0	12.8
	Btu/h	27200	43520
Heating Power Input	kW	1.8	2.88
Running Current	A	8.2	13.2
Power Supply		220-240V~/50Hz	220-240V /50Hz
Compressor Quantity		1	1
Compressor		rotary	Rotary
Fan Number		1	1
Fan Power Input	W	120	150
Fan Rotate Speed	RPM	850	850
Fan Direction		horizontal	Horizontal
Noise	dB(A)	54	56
Water Connection	mm	50	50
Water Flow Volume	m^3/h	4.5	5.0
Water Pressure Drop(max)	kPa	3.5	4.2
Unit Net Dimensions(L/W/H)	mm	See the drawing of the units	
Unit Ship Dimensions(L/W/H)	mm	See package lable	
Net Weight	kg	see nameplate	
Shipping Weight	kg	see package label	

Heating: Outdoor air temp: 27℃/24.3℃, Inlet water temp:26℃
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