

HydroController – Programmable inverters

Variable speed inverters to suit a wide variety of applications

- **Varies Pump Speed to Match Demand**
- **Controls Pumps up to 11kw**
- **Single Phase Only, Three Phase Only and Single Phase to Three Phase Models Available**
- **Programmable Operating Parameters**
- **Built In Pump Protection (Dry Run, over/under Voltage, Low System Pressure, Output over-voltage)**
- **Energy Saving**
- **Programmable Restart Pressure**
- **Water or Air Cooled**
- **In-line or Wall Mount Fitting**
- **Vertical or Horizontal Mounting**

How Does It Work?

Mac3 **HydroController** series are a family of inverters (*variable frequency drives*), designed for controlling water pumps. Depending on the requirements, a selection of models are available to meet a variety of needs.

HydroController is available in two physical configurations:

- **HCW**, is a water cooled unit, mounted onto the installation pipes through the use of the built in 1¼” female BSP mountings. This unit contains a built-in pressure sensor and flow meter.

HCW
Water cooled, in-line mounted mode



HCA
Air cooled, wall mounted model



- **Can Be Linked with 7 Other Pumps with HydroController Units via Integrated CanBus Interface** (Adv version only)
- **Automatically Assigns Another “Master” Controller if Original Fails** (Adv version only)

- **HCA**, is a air cooled unit, wall mounted near the point of installation. A external pressure sensor is supplied and is connected to the water pipes. This allows for the HydroController to be installed away from the pump, for convenience.

All of the operating parameters are customisable through the onboard interface with LCD display.

HydroController is supplied with either *Standard (Std)* or *Advanced (Adv)* capabilities.

HydroController Std is designed to control a single pump and optionally an additional fixed speed pump.

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HydroController Adv can communicate with up to eight other Pumps with HydroControllers via a CANbus, a robust multi-master serial interface with high immunity to interference.

The *Multimaster* mode allows **HydroController Adv** units to self-appoint the role of 'Master'. Should the current master unit develop a fault, the master role will be taken by another unit and the system can continue to function as intended. This greatly improves fault tolerance and reduces maintenance and costs.

HydroController Advanced (Adv) also features 2 extra output relays and 2 auxiliary digital (switch) inputs which can be configured to suit varying needs as required.

HydroController Advanced (Adv) is designed to be compatible with *Mac3 Multipress*, allowing the system to function with a commercial irrigation controller.

Various power ratings and mains electrical configurations are available and divided into 3 voltage types, indicated in the product code with the following letters.

MM - Single phase 230VAC supply controlling a single phase 230VAC pump.

MT - Single phase 230VAC supply controlling a three phase 230VAC pump

TT - Three phase 400VAC supply controlling a 3 phase 400VAC pump

If this unit is to be installed with a cable length of more than 20 meters between the **HydroController** and a pump, it is advisable that a *Mac3 ACL Filter* be added to eliminate harmonics created by high frequency reflectance in long cable lengths. Please ask when ordering to discuss if this would be necessary for a particular project.

HydroController Models

Model	Line Voltage	Pump Voltage	Phase Current	Max Pump Power	Float Switch Inputs	Inputs	Irrigation Controller Inputs	Outputs	Multiple Inverter Operation
HC-MM08-ST	~1 230VAC	~1 230VAC	8A	1.1kw(1.5hp)	1			1	No
HC-MM08-ADV						2	4	3	Yes
HC-MM12-ST			12A	1.6kw(2.2hp)				1	No
HC-MM12-ADV						2	4	3	Yes
HC-MT10-ST	~3 230VAC	10A	2.2kw(3hp)			1	No		
HC-MT10-ADV				2		4	3	Yes	
HC-TT06-ST	~3 400VAC		6A					1	No
HC-TT06-ADV						2	4	3	Yes
HC-TT11-ST			11A	4kw(5.5hp)				1	No
HC-TT11-ADV						2	4	3	Yes
HC-TT15-ADV			15A	5.5kw(7.5hp)					
HC-TT18-ADV			18A	7.5kw(10hp)					
HC-TT25-ADV			25A	11kw(15hp)					

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Technical Specifications HydroController TT Std / Adv		
Physical		
Dimensions	HCW 3 – 2.2Kw (3hp) Model	170x190x360 mm
	HCW 3 – 4Kw (5.5hp) Model	170x190x360 mm
	HCA 3 – 4Kw (5.5 hp) Model	170x243x350 mm
	HCA 5.5Kw (7.5 hp) Model	185x243x390 mm
Weight	HCW 3 – 2.2Kw (3hp) Model	4 Kg
	HCW 3 – 4Kw (5.5hp) Model	4 Kg
	HCA 3 – 4Kw (5.5hp) Model	5.6 Kg
	HCA 5.5Kw (7.5hp) Model	8 Kg
Mounting	HCA Model	Wall Mounted Vertical, In Free Air
	HCW Model	Any Position, In-Line 1¼" Female
Cooling	HCA Model	Air
	HCW Model	Water
Ambient Temperature		5°C – 40°C
Display		2x16 LCD
Ingress Protection		IP65
Electrical		
Power Supply		400Vac 50 / 60Hz Three Phase
Absorbed Power (P1)	2.2Kw (3 hp) Model	3.3kW Max.
	4Kw (5.5 hp) Model	6kW Max.
	5.5Kw (7.5 hp) Model	8.2kW Max.
Maximum Pump Power (400Vac Three Phase) (P2)	2.2Kw (3 hp) Model	2.2kW
	4Kw (5.5 hp) Model	4kW
	5.5Kw (7.5 hp) Model	5.5kW
Output Frequency		10 - 60 Hz (Resolution 0.01Hz)
Maximum Phase Current	HCW 2.2 - 4Kw (3 – 5.5hp) Model	6A
	HCA 2.2 - 4Kw (3 – 5.5 hp) Model	11A
	HCA 5.5Kw (7.5 hp) Model	15A
Acceleration Time		0.7 – 5 Seconds
Deceleration Time		0.7 – 5 Seconds
Programmable Pressure Range		0.3 – 7.5 Bar (±0.2 Bar)
Maximum Overpressure For HCW Models		12 Bar
Electrical Safety		EN60730
Electromagnetic Compatibility		EN61000-6-3 EN61000-6-4
Pump Protections		Dry run, Over/Under-voltage, Short Circuit, Over-current, Over Temperature, Pressure Failure, Sensor Failure, Water Hammer

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Technical Specifications HydroController MT Std / Adv		
Physical		
Dimensions	HCW Model	170x190x360 mm
	HCA Model	180x245x390 mm
Weight	HCW Model	2500g
	HCA Model	5600g
Mounting	HCA Model	Vertical, On Wall In Free Air
	HCW Model	Any Position, In-Line 1¼" Female
Cooling	HCA Model	Air
	HCW Model	Water
Ambient Temperature	5°C – 40°C	
Display	2x16 LCD	
Ingress Protection	IP65	
Electrical		
Power Supply	230Vac 50 / 60Hz	Single Phase (From 170 – 270Vac)
Maximum Pump Power (230Vac Three Phase) (P2)	3.3kW Max.	
	1.5kW	
	2.2kW	
Output Frequency	10 - 60 Hz	(Resolution 0.01Hz)
Maximum Phase Current	8A	
	10A	
Acceleration Time	0.7 – 5 Seconds	
Deceleration Time		
Programmable Pressure Range	0.3 – 7.5 Bar	(±0.2 Bar)
Maximum Overpressure For HCW Models	12 Bar	
Electrical Safety	EN60730	
Electromagnetic Compatibility	EN61000-6-3 EN61000-6-4	
Pump Protections	Dry run, Over/Under-voltage, Short Circuit, Over-current, Over Temperature, Pressure Failure, Sensor Failure, Water Hammer	

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Physical		
Dimensions	HCW Model	170x190x360 mm
	HCA Model	180x245x390 mm
Weight	HCW Model	2500g
	HCA Model	5600g
Mounting	HCA Model	Vertical, On Wall In Free Air
	HCW Model	Any Position, In-Line 1¼" Female
Cooling	HCA Model	Air
	HCW Model	Water
Ambient Temperature		5°C – 40°C
Display		2x16 LCD
Ingress Protection		IP65
Electrical		
Power Supply		230Vac 50 / 60Hz Single Phase (From 170 – 270Vac)
Absorbed Power (P1)	1.1Kw (1.5hp) Model	1.6kW Max.
	1.6Kw (2.2 hp) Model	2.3kW Max.
Maximum Pump Power (230Vac Single Phase) (P2)	1.1Kw (1.5hp) Model	1.1kW
	1.6Kw (2.2 hp) Model	1.6kW
Output Frequency		10 - 60 Hz (Resolution 0.01Hz)
Maximum Phase Current	1.1Kw (1.5hp) Model	8A
	1.6Kw (2.2hp) Model	12A
Acceleration Time		0.7 – 5 Seconds
Deceleration Time		
Programmable Pressure Range		0.3 – 7.5 Bar (±0.2 Bar)
Maximum Overpressure For HCW Models		12 Bar
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