HYDROCONTROL
Variable Frequency Drive for Pump Control
HYDROCONTROLLER HCA

New generation of variable frequency drives designed for wall mounting cooled by air guarantees the best performance of your controller in a compact installation. The high quality transducer guarantees the perfect operation of the system. Controller protection designed for indoor installation. Three levels of programming (quick, maintenance and advanced) makes basic parameters setting fast and easy however it allows the installer to optimize the system by modifying a wide range of parameters if it is needed.

HCA STANDARD VERSION

When there is a flow variation, HCA keeps the pressure in your system always constant by increasing or decreasing the motor’s frequency.

Technical Specifications

- Max. Pump Amp: 8 Amp for HCAMT-ST
  12 Amp for HCAMM-ST
  15 Amp for HCATT-ST

- Designed to control one pump.
- Pressure tank required. Recommended capacity equal to 20% of system flow.
- Because it uses pressure transducer there are no limits in the flow.
- Max. Pressure setting: 108psi.
- Wall mounted and installation in vertical position.
- Indoor installation only.
- Pressure transducer with current output 4-20mA and 15 feet cord.

Basic Types of Protection

- Power supply too low or too high.
- Short circuit.
- Maximum current absorbed.
- Over temperature.
- Dry running.
- Broken pipe.
- Water hammer.
- Input for external float switch.
- Output relay for extra signal or alarms.

See operations manual for more settings
HCA ADVANCED VERSION

Keeps constant pressure in your system by changing the motor’s frequency, therefore it is the perfect solution for building boosting systems with multiple pumps.

Technical Specifications:

• Max. Pump Amp: - 11 Amp for HCAMT-ADV
  - 12 Amp for HCAMM-ADV
  - 15 Amp for HCATT-ADV

• Designed to control up to 8 pumps
• Pressure tank required. Recommended capacity equal to 20% of the system flow.
• Because it uses pressure transducer there are no limits in the flow.
• Max. Pressure setting: 108psi.
• Wall mounted and installation in vertical position.
• Indoor installation only.
• Pressure transducer with current output 4-20mA and 15 feet cord.
• 4 Inputs for irrigation signal (24V AC/DC)

Basic Types of Protection

• Power supply too low or too high.
• Short circuit.
• Maximum current absorbed.
• Over temperature.
• Dry running.
• Broken pipe.
• Water hammer.
• Input for external float switch.
• Output relay for additional controllers or alarms.
• Able to work up to 8 controllers synchronized.
• Pump alternation insure a balanced used of all of all pumps in the system.
• Damage recognition: if one controller fails, the next controller assumes the system control.
• Software preset for multiple installations.

See operations manual for more settings
HYDROCONTROLLER HCW

New generation of variable frequency drives inline cooled by water guarantees the best performance of your controller in a compact installation. The integrated pressure sensor eliminates the need for a pressure transducer. IP65 Controller protection, comparable to Nema 4 Standards.

Three levels of programming (quick, maintenance and advanced) makes basic parameters setting fast and easy however it allows the installer to optimize the system by modifying a wide range of parameters if it is needed.

HCW STANDARD VERSION

When there is a flow variation, HCW keeps the pressure in your system always constant by increasing or decreasing the motor’s frequency.

Technical Specifications

• Max. Pump Amp: - 8 Amp for HCWMT-ST
  - 12 Amp for HCWMM-ST

• Designed to control one pump.
• Pressure tank required. Recommended capacity equal to 20% of system flow.
• Max. flow: 50gpm.
• Max. pressure setting: 108psi.
• Inlet/Outlet: 1 ¼” female.
• Vertical or horizontal installation.
• Outdoor installation.
• Built-in check valve.

Basic Types of Protection

• Power supply too low or too high.
• Short circuit.
• Maximum current absorbed.
• Over temperature.
• Dry running.
• Broken pipe.
• Water hammer.
• Input for external float switch.
• Output relay for extra signal or alarms.

See operations manual for more settings

<table>
<thead>
<tr>
<th>HCW STANDARD VERSIONS</th>
<th>POWER SUPPLY 230V / 1PH</th>
<th>PUMP MOTOR 230V / 3PH</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCWMT-ST</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HCWMM-ST</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The beauty and advantages of constant pressure
HYDROCONTROLLER HCW

Keeps constant pressure in your system by changing the motor’s frequency, therefore it is the perfect solution for building boosting systems with multiple pumps.

Technical Specifications:

- Max. Pump Amp: 11 Amp for HCWMT-ADV
- Max. Pump Amp: 12 Amp for HCWM-ADV
- Designed to control up to 8 pumps
- Pressure tank required. Recommended capacity equal to 20% of the system flow.
- Max. Flow: 50gpm. (for each HCW)
- Max. Pressure setting: 108psi.
- Inlet/Outlet: 1 ¼” female.
- Vertical or horizontal installation.
- Outdoor installation.
- Built-in check valve.
- 4 Inputs for irrigation signal (24V AC/DC)

Basic Types of Protection

- Power supply too low or too high.
- Short circuit.
- Maximum current absorbed.
- Over temperature.
- Dry running.
- Broken pipe.
- Water hammer.
- Input for external float switch.
- Output relay for extra signal or alarms.
- Able to work up to 8 controllers synchronized.
- Pump alternation to insure a balanced use of all the pumps in the system.
- Damage recognition: if one controller fails, the next controller assumes the system control.
- Software preset for multiple installations.

See operations manual for more settings
HYDROCONTROLLER E-POWER

New generation of variable frequency drives inline cooled by water guarantees the best performance of your controller in a compact installation. The integrated pressure sensor eliminates the need for a pressure transducer. IP65 Controller protection, comparable to Nema 4 Standards. It makes basic parameters setting fast and easy however it allows the installer to optimize the system by modifying a wide range of parameters if it is needed.

EPW STANDARD VERSION

When there is a flow variation, E-POWER keeps the pressure in your system always constant by increasing or decreasing the motor’s frequency.

Technical Specifications

- Max. Pump Amp: 10 Amp for EPW
- Designed to control one pump.
- Pressure tank required. Recommended capacity equal to 20% of system flow.
- Max. flow: 50gpm.
- Max. pressure setting: 108psi.
- Inlet/Outlet: 1 ¼" female.
- Vertical or horizontal installation.
- Outdoor installation.

Basic Types of Protection

- Power supply too low or too high.
- Short circuit.
- Maximum current absorbed.
- Over temperature.
- Dry running.
- Broken pipe.
- Water hammer.
- Input for external float switch.
- Output relay for extra signal or alarms.

See operations manual for more settings
When the distance between the Hydrocontroller and the pump is longer than 30 feet, it is recommended to install an adapter which reduces the interference of eventual capacitive effects. MAC 3 makes such adapters suitable for distance of up to 250 feet.

Depending on the type of motors the available adapters are:

<table>
<thead>
<tr>
<th>Adapter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACL M – ACL T</td>
<td>Adapter for Single Phase Pumps</td>
</tr>
<tr>
<td>ACLTFF</td>
<td>Adapter for Three Phase Pumps</td>
</tr>
<tr>
<td>ACLMFF</td>
<td>Adapter for Single Phase Pumps with filter and fan</td>
</tr>
<tr>
<td>ACLTFF</td>
<td>Adapter for Single Phase Pumps with filter and fan</td>
</tr>
</tbody>
</table>

If the system is installed in an environment where magnetic interference could be present or there is an important distance between the hydrocontroller and the power source, it is recommended to install additional filters. MAC3 offers EMI filters in the following versions:

<table>
<thead>
<tr>
<th>Filter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFILT – M501</td>
<td>EMI filter, Single Phase, 50 A, single cell</td>
</tr>
<tr>
<td>INFILT – T201</td>
<td>EMI filter, Three Phase, 20 A, single cell</td>
</tr>
<tr>
<td>INFILT – M501</td>
<td>EMI filter, Three Phase, 20 A, double cell</td>
</tr>
</tbody>
</table>

When the system is installed to run an irrigation system, different pressure zone may be needed. To handle those different “Pressure Zones” with the best efficiency, MAC 3 offers MULTIPRESS, a device used to connect the electro-valves and your irrigation controller.

The Hydro Controller “Advanced Version” comes with a feature which allows you to set the operating pressure for every zone (up to 4 zones) and every zone can handle up to 4 different electro-valves.

For an easy installation and/or maintenance, we recommend the installation of a 1 ¼" male-female stainless steel connection in the inlet and in the outlet at the device.
<table>
<thead>
<tr>
<th>MODEL</th>
<th>VARIABLE FREQUENCY DRIVE WATER COOLED</th>
<th>VARIABLE FREQUENCY DRIVE AIR COOLED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>STANDARD</td>
<td>ADVANCED</td>
</tr>
<tr>
<td>HCVMT08</td>
<td>HCWMT10</td>
<td>HCWMT12</td>
</tr>
<tr>
<td>POWER SUPPLY</td>
<td>230 V - 1 PH</td>
<td>230 V - 1 PH</td>
</tr>
<tr>
<td>MOTOR VOLTAGE</td>
<td>230 V - 3 PH</td>
<td>230 V - 3 PH</td>
</tr>
<tr>
<td>VOLTAGE FLUCTUATIONS</td>
<td>+ / - 15%</td>
<td>+ / - 15%</td>
</tr>
<tr>
<td>FREQUENCY</td>
<td>50 / 60 Hz</td>
<td>50 / 60 Hz</td>
</tr>
<tr>
<td>MAXIMUM PUMP AMMERS</td>
<td>8 AMP</td>
<td>11 AMP</td>
</tr>
<tr>
<td>SOFT ENGINE START</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>POWER CORD LENGTH</td>
<td>3 Feet</td>
<td>3 Feet</td>
</tr>
<tr>
<td>PRESSURE SENSOR</td>
<td>INTEGRATED</td>
<td>INTEGRATED</td>
</tr>
<tr>
<td>PRESSURE SENSOR CORD</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>MAXIMUM OPERATING PRESSURE</td>
<td>150 psi</td>
<td>150 psi</td>
</tr>
<tr>
<td>PRESSURE RANGE OF OPERATION</td>
<td>10 psi to 108 psi</td>
<td>10 psi to 108 psi</td>
</tr>
<tr>
<td>MINIMUM FLOW</td>
<td>0.25 GPM</td>
<td>0.25 GPM</td>
</tr>
<tr>
<td>MAXIMUM WORKING TEMPERATURE F</td>
<td>104 F</td>
<td>104 F</td>
</tr>
<tr>
<td>OUTDOOR INSTALLATION</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>DRY RUN PROTECTION</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>AUTOMATIC REAMING</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>ANTI-JAMMING FUNCTION</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>OVERLOAD PROTECTION</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>PROTECTION AGAINST POWER SURGES</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>OVERTEMPERATURE PROTECTION</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>PROTECTION AGAINST INSUFFICIENT PRESSURE</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>PROTECTION AGAINST SHORT CIRCUIT</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>CHECK VALVE</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>CONNECTIONS</td>
<td>1 ¼” FEMALE THREAD</td>
<td>1 ¼” MALE THREAD</td>
</tr>
<tr>
<td>DIMENSIONS</td>
<td>14.2” H x 9.7” W x 6.7” D</td>
<td>13” H x 10” W x 7” D</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>12 LBS</td>
<td>6 LBS</td>
</tr>
<tr>
<td>MULTI PUMP USES</td>
<td>1 PUMP</td>
<td>UP TO 8 PUMPS</td>
</tr>
<tr>
<td>INPUT FOR IRRIGATION SIGNAL</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>INPUT FOR FLOAT SWITCH</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>OUTPUT FOR ALARM</td>
<td>YES</td>
<td>NO</td>
</tr>
</tbody>
</table>