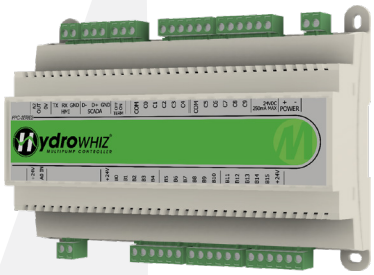
HydroWHIZ PUMP CONTROLLERS

VSD

MATelec Australia's HydroWHIZ Controller has been designed with ease of use at the core of the system design. Building on the wealth of the pump control features in the Advanced controller, the HydroWHIZ brings these features into a new age with a colour touch screen interface and a streamlined setup process. In a world where information is power the HydroWHIZ has extensive time and date stamped alarms, logged data, trend graphs and diagnostic pages to provide the user with all the information required for optimisation and preventative maintenance. Featuring the flexibility of level, pressure and temperature system modes with a wide range of functions and protections, the HydroWHIZ VSD controller is ideal for a wide range of applications including water transfer, stormwater and sewage pump out, constant pressure, hot water circulation and chiller supply, to name a few.



HARDWARE FEATURES

Enclosure:
- IP44 rated, powder coated mild steel enclosure with removable gland plate, integral ventilation and thermostatically controlled fan

Protection:
- Pad-lockable mains power isolator switch
- Circuit breaker protected low voltage control and input circuitry
- Individual pump circuit breaker protection
- Din rail mounted terminal connections

Control & interface:
- HydroWHIZ colour touch screen HMI (see Interface features)
- HydroWHIZ PCB control module
- Variable speed drive per pump

Inputs:
- Single phase (230Vac) or three phase (400Vac) power supply
- Analog 4-20mA input for level, pressure or temperature transducer
- Up to 8x digital 24Vdc inputs for backup low and high float switches, pressure switches or thermostats, system enable/disable input and a low flow switch

Outputs:
- 1-6 pump outputs (230Vac three phase for both 1 & 3 phase versions)
- BMS volt free output for common fault
- Output for solenoid valve available on request
- Modbus RTU Serial RS485 connections for SCADA

Included with panel:
- 16 bar pressure transducer
- Shielded VSD motor cables

COMMON APPLICATIONS

- Water transfer
- Tank fill
- Sewage pump out
- Stormwater pump out
- Pressure boosting
- Constant level, pressure or temperature
- Hot water recirculation
- Chiller supply

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FUNCTION FEATURES

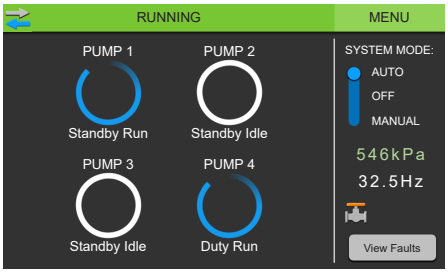
- **Multi pump control -** Control of up to 6 pumps in any number of duty, duty assist and standby pump configurations
- **Pump limiting -** For limiting max flow or power requirements
- **Duty sharing and alternation -** Adjustable duty change period and bumpless transfer
- **Pump staging and destaging -** Additional pumps are staged into operation to maintain setpoint and destaged when no longer required
- **Staggered pump start and stop -** Prevents excessive current draw and reduce water surge or hammer
- **Manual control -** Manual modes for system and pumps with 10 minute timeout to revert back to auto mode
- **System types -** Level, pressure or temperature control modes
- **Control directions -** For emptying or filling a tank, boosting or dropping pressure and heating or cooling temperature
- **Speed control of pumps -** Proportional speed control for level and temperature control, PID control for pressure with adjustable proportional and integral values to change VSD responsiveness
- **Level control mode -** Controlled by 4-20mA hydrostatic level transducer and optional backup high and low level float switches, submerged in a tank or pit
- **Tank top up valve control -** Tops up tank with mains water when normal inflow of rain or treated water into tank does not keep up with demand (Specific to level control, available upon request)
- **Maintain minimum level -** Ensures minimum tank level is maintained (Specific to level mode, empty direction)
- **Pressure control mode -** Controlled by 4-20mA pressure transducer and optional high and low pressure switches
- **Jacking pump control -** Pump 1 will always be the first to wake from sleep and main pumps will start if unable to keep up with demand (Specific to pressure mode)
- **Mains bypass valve control -** Switches to mains water to bypass supply tank when pumping system is out of water or in fault condition (Specific to pressure mode, available on RMC version)
- **Sleep assist speed minimise -** When the system is at setpoint and pump speed is constant due to no demand for water, the system will slowly drop the pump speed, helping it to go to sleep sooner (Specific to pressure mode)
- **Sleep assist boost -** When the system is nearing setpoint and there is no demand for water, the system will boost the pressure before going to sleep so it can sleep for longer, reducing pump cycling (Specific to pressure control)
- **Pipe fill -** If the system wakes up and pressure is low, pipe fill runs a single pump to gently build pipe pressure and shuts the pump down if unable to build pressure within 10 minutes (Specific to pressure mode)
- **Temperature control mode -** Controlled by 4-20mA temperature transducer and optional backup high and low temperature thermostats
- **Sleep modes -** Sleep can be enabled to allow pumps to sleep when setpoint is reached, or disabled so one pump is always running to circulate water (specific to temperature mode)

FAULT PROTECTION

- **Protection modes -** Apply to most protections, and include alarm (alarm only), lockout (alarm and pump shut-down) and inhibit (pump shutdown only, no alarm)
- **High and low level, pressure or temperature protection -** Alarm and/or shutdown on high and low level, pressure or temperature depending on the system type, low pressure protection features automatic restart attempts
- **Auxiliary tank level protection -** Pump shut-down on supply low or destination tank full (using system enable input)
- **Pump anti-seize protection -** Runs pumps periodically during low use to prevent seizing
- **Maximum run protection -** Activates after pumps run at max speed for 30 mins, protecting the system in the event of a burst pipe, with automatic restart attempts
- **Pump cycle protection -** Activates if system goes to sleep but wakes up within 5 seconds, 10 times in a row, due to a faulty non-return valve or similar fault preventing the system from maintaining pressure
- **No flow protection -** Activates if a pump is running but there is no flow for 30 seconds (if using flow switch instead of low level float), with automatic restart attempts
- **Feedback signal fault protection -** Shuts down all pumps in the event of a transducer failing
- **Pump VSD fault protection -** VSDs feature short circuit, overload, supply phase loss, under/over voltage, earth fault and other protections to protect the pumps

INTERFACE FEATURES

- Main screen with system status, auto/off/manual modes
- Pump screens with status, logged data and auto/off/manual control
- Alarms screens with mute/reset, date & time stamped historical faults
- Logged data with system event & fault counts, pump starts, run hours
- Analog feedback value trend graph
- Streamlined, user friendly system setup process
- System diagnostics for easy fault finding, factory reset



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HydroWHIZ VSD RANGE

Code	No of Pumps	Phase / Voltage	VSD Rating Options	Enclosure Size
FPC-63121	1	1 Phase / 230Vac	-A to -C	500x500x300mm +
FPC-63120	1	3 Phase / 400Vac	-A to -K	500x500x300mm +
FPC-63221	2	1 Phase / 230Vac	-A to -C	500x500x300mm +
FPC-63220	2	3 Phase / 400Vac	-A to -K	500x500x300mm +
FPC-63321	3	1 Phase / 230Vac	-A to -C	600x600x300mm +
FPC-63320	3	3 Phase / 400Vac	-A to -K	600x600x300mm +
FPC-63421	4	1 Phase / 230Vac	-A to -C	600x600x300mm +
FPC-63420	4	3 Phase / 400Vac	-A to -K	600x600x300mm +

Note: 1 Phase panels are 1 Phase 230Vac in & 3 Phase 230Vac out

Note: Enclosure sizes will increase for higher kW ratings

Additional panels for up to 6 pumps available

VSD RATING GUIDE

Code Suffix	kW Rating
-A	0.75 kW
-B	1.5 kW
-C	2.2 kW
-D	3 kW
-E	4 kW
-F	5.5 kW
-G	7.5 kW
-H	11 kW
-I	15 kW
-J	18.5 kW
-K	22 kW

Additional VSD ratings available on request

ADDITIONAL OPTIONS

- **/BMS -** With BMS volt free outputs for power on, low pressure, individual pump run, individual pump fault & common fault
- **/SMS -** With ME-Link Module for SMS alarm/status messaging
- **/RMC -** With rain/mains changeover control module and 12Vdc pulse latching solenoid valve
- **/GEN -** Generator input socket & manual changeover switch
- **/ATS -** With automatic generator changeover
- Output for normally closed tank top up valve
- IP56 rated enclosure with inner door and fan/vent covers
- 316 stainless steel enclosure
- Free standing enclosure with plinth
- Separate compartments for power authority meters
- Modbus TCP gateway with ethernet port

Optional - IP56 enclosure with inner door & vent covers

OPTIONAL VARIATION - WITH BMS

Add **/BMS** to standard code, after VSD rating (Eg - FPC-63X21-B/BMS)

Additional hardware features:

- BMS volt free outputs for power on, low pressure, individual pump run, individual pump fault and common fault

OPTIONAL VARIATION - WITH RAIN/MAINS CHANGEOVER

Add **/RMC** to standard code, after VSD rating (Eg - FPC-63X21-B/RMC)

The HydroWHIZ with RMC is designed for pressure pumping applications that require mains bypass, featuring an output for a pulse latching solenoid valve to maintain water supply when the pumping system is off or locked out due to a fault, the supply tank is low or on power failure.

Additional hardware features:

- Rain/mains control module with output for pulse latching mains bypass solenoid valve
- 25mm female/female 12Vdc pulse latching solenoid valve (other sizes available on request)