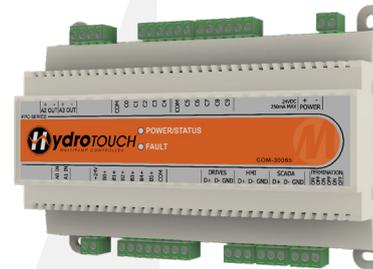


## VSD



The HydroTOUCH range of pump controllers is an market leading, second generation multi-pump controller designed to operate up to 12 pumps. It features a wide range of advanced control options and a highly flexible array of input and output signals, both digital and analog. Incorporating an easy set-up wizard and a user friendly touch screen, operation of these sophisticated controllers is a breeze! The HydroTOUCH VSD controllers have been designed for four different control operations - Pressure, Level, Temperature and Flow, and are highly customisable to suit your specific application.



### 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:

- HydroTOUCH 7 inch colour touch screen HMI (see Interface features)
- HydroTOUCH VSD control module
- Variable speed drive per pump

#### Inputs:

- Single phase (230Vac) or three phase (400Vac) power supply
- 2x analog 4-20mA inputs for level, pressure or temperature transducers
- Up to 5x 24Vdc digital inputs for float, pressure or flow switches or thermostats
- Digital pulse input for flow meter
- Standard terminal setup: Pressure transducer, level transducer, pulse flow meter, low level float switch, high pressure switch

#### Outputs:

- 1-12 pump outputs (230Vac three phase for both 1 & 3 phase versions)
- Volt free outputs for system fault, individual pump run and fault (for up to 4 pumps, additional available upon request)
- 2x analog 4-20mA outputs for analog readings
- Output for solenoid valve available upon 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 pressure
- Process Water Control
- Filtration
- Dosing
- Hot water recirculation
- Chiller supply

### FUNCTION FEATURES

- **Multi pump control** - Control of up to 12 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 reduces water surge or hammer
- **Manual pump control** - Pump manual mode with ability to override system protections for 15 mins, before reverting back to auto mode
- **System types** - Level, pressure, temperature or flow control modes
- **Control directions** - For emptying or filling a tank, boosting or dropping pressure, raising or lowering flow rate, and heating or cooling temperature
- **Pump speed control** - Proportional speed control of pumps in level mode, PID speed control with adjustable proportional and integral values to change VSD responsiveness in pressure, flow and temperature modes
- **Jacking pump control** - Pump 1 can be configured as a DOL jacking pump or VSD static lead pump
- **Pressure control mode** - Controlled by a 4-20mA pressure transducer and optional backup high pressure switch
- **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)
- **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 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 upon request)
- **Level control mode** - Controlled by 4-20mA level transducer and optional backup high and low level float switches
- **Well wash valve control** - When the system has pumped down to setpoint and the pumps have stopped, the system will open the well wash valve for 5 minutes every 24 hours (specific to level mode)
- **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 pressure and level control, available upon request)
- **Flow control mode** - Controlled by a pulse flow meter and optional backup high and low flow switches
- **Temperature control mode** - 4-20mA temperature transducer and optional backup high and low temp thermostats
- **Auxiliary tank level monitoring** - Using additional level transducer in auxiliary tank, instead of backup transducer
- **UV lamp control** - Optional UV lamp control for installations that require UV filtering, with adjustable modes

### FAULT PROTECTION

- **Protection modes** - Most protections feature adjustable modes including alarm (alarm only), lockout (alarm and pump shut-down) and inhibit (pump shut-down, no alarm)
- **High and low level, pressure, temperature or flow protection** - Alarm and/or shutdown on high and low level, pressure, flow or temperature depending on the system type, low pressure and flow feature auto restart attempts
- **Medium level protection** - Provides an additional level alarm before the high or low level is reached
- **Auxiliary tank level protection** - High and low level protection from floats or level transducer in auxiliary tank
- **Auxiliary high & low temp protection** - If using additional temperature device instead of backup transducer (specific to temperature mode)
- **Auxiliary high pressure protection** - If using additional pressure transducer (specific to flow mode)
- **Maximum flow protection** - Activates after pumps run at max flow/speed for 30mins, protecting the system in the event of a burst pipe
- **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
- **Low flow protection** - Alarms and/or shuts down pump or system if a pump is running but there is no flow for 30 seconds, with automatic restart attempts before activating a lockout
- **Analog fault protection** - Activates faults if analog inputs fail
- **Transducer redundancy** - Switches to backup transducer if primary transducer fails (if using backup transducer)
- **Transducer discrepancy** - If difference between primary and secondary transducers exceeds a certain amount, system will use the most appropriate input relative to the setpoint to protect system from overshooting
- **VSD fault protection** - VSDs feature short circuit, overload, supply phase loss, under/over voltage, earth fault and other protections to protect the pumps
- **Filter blocked protection** - Protects the system when filters are blocked or faulty
- **UV fault protection** - Protects the system when UV filters are faulty

VSD



## INTERFACE FEATURES

- Main screen with system and pump status, active faults, pump speed and analog level, pressure, flow or temperature values
- Individual pump monitoring screen with status, run hours, number of starts, speed, voltage, current, power and manual control with ability to override system lockouts
- Graphical overview screen for monitoring overall system operation
- Alarm screen with date and time stamped faults
- Logged data screen with power and water usage graphs, trend graphs for pressure, level and flow, pump run timers and system event counters
- System diagnostics screen for easy fault finding, pump rotation testing
- User friendly setup wizard for easy commissioning
- Advanced parameter adjustment



## HydroTOUCH PUMP CONTROLLERS - VSD

Code	No of Pumps	Phase / Voltage	VSD Rating Options	Enclosure Size
FPC-43121	Single	1 Phase / 230Vac	-A to -C	500x500x300mm +
FPC-43120	Single	3 Phase / 400Vac	-A to -K	500x500x300mm +
FPC-43221	Dual	1 Phase / 230Vac	-A to -C	500x500x300mm +
FPC-43220	Dual	3 Phase / 400Vac	-A to -K	500x500x300mm +
FPC-43321	Triplex	1 Phase / 230Vac	-A to -C	600x600x300mm +
FPC-43320	Triplex	3 Phase / 400Vac	-A to -K	600x600x300mm +
FPC-43421	Quad	1 Phase / 230Vac	-A to -C	600x600x300mm +
FPC-43420	Quad	3 Phase / 400Vac	-A to -K	600x600x300mm +
FPC-43521	Quintuple	1 Phase / 230Vac	-A to -C	TBA
FPC-43520	Quintuple	3 Phase / 400Vac	-A to -K	TBA
FPC-43521	Hextuple	1 Phase / 230Vac	-A to -C	TBA
FPC-43520	Hextuple	3 Phase / 400Vac	-A to -K	TBA

**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 12 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

### OPTIONAL MODIFICATIONS

- With ME-Link Module for SMS alarm/status messaging
- With rain/mains changeover control module and 12Vdc pulse latching solenoid valve
- Generator input socket and manual changeover switch, or automatic changeover
- Output for normally closed tank top up or well wash 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 meter
- Modbus TCP gateway with ethernet port

Additional VSD ratings available on request