# SPECIFICATION SHEET
## HydroSTART Pump Controllers

FPC-8XX4X

## HARDWARE FEATURES

**Enclosure:**
- Powder coated mild steel enclosure with removable gland plate
- IP54 rated with single door, for indoor mounting (Single Door version), or:
- IP56 rated with inner door, for outdoor mounting (Inner Door version)

**Protection:**
- Padlockable mains power isolator switch
- Low voltage control and input circuitry
- Individual pump circuit breaker protection/isolation
- Contactors for pump switching (three phase panels)
- Electronic short and overload protection of alarms
- Din rail mounted terminal connections
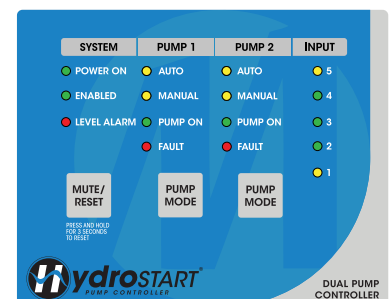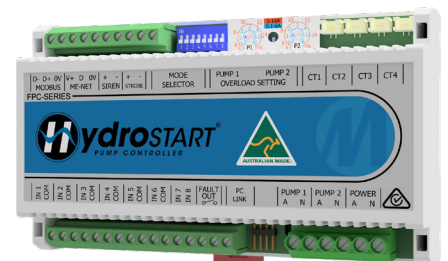
**Control & interface:**
- HydroSTART single or dual pump capacitive touch keypad interface:
    - Indicator lights for system, pump and input status, level alarm
    - Buttons for alarm mute/reset and pump mode selection
- HydroSTART PCB control module with dipswitches for adjusting configuration
- Visual (strobe) and audible (buzzer) alarms
- Pump current sensing providing adjustable overload & other protections
- Soft starter per pump with adjustable soft start & stop (Soft Start versions)

**Inputs:**
- Single phase (230Vac) or three phase (400Vac) power supply
- 6x digital inputs for float or pressure switches, optional prime loss flow switch and system enable
- Standard terminal setup: Low level, duty stop, duty start, standby start, high level and system enable

**Outputs:**
- 1 or 2x pump supply outputs
- BMS volt free output for common fault
- Modbus RTU Serial RS485 connections for SCADA





## COMMON APPLICATIONS

- Sewage pump out
- Stormwater pump out
- Water transfer
- Pressure boosting
- Hot water recirculation

MATelec Australia's HydroSTART Controller brings the features of the standard single and dual pump controllers into a new age with a redesigned capacitive touch keypad and control module with pump current sensing, providing wide range electronic overload protection which now functions with both single and three phase pumps. Additional control inputs and functionality has been incorporated into the new design to enhance the controller's flexibility and cover an even wider range of pumping applications. **The HydroSTART is the new standard for pump controls.**
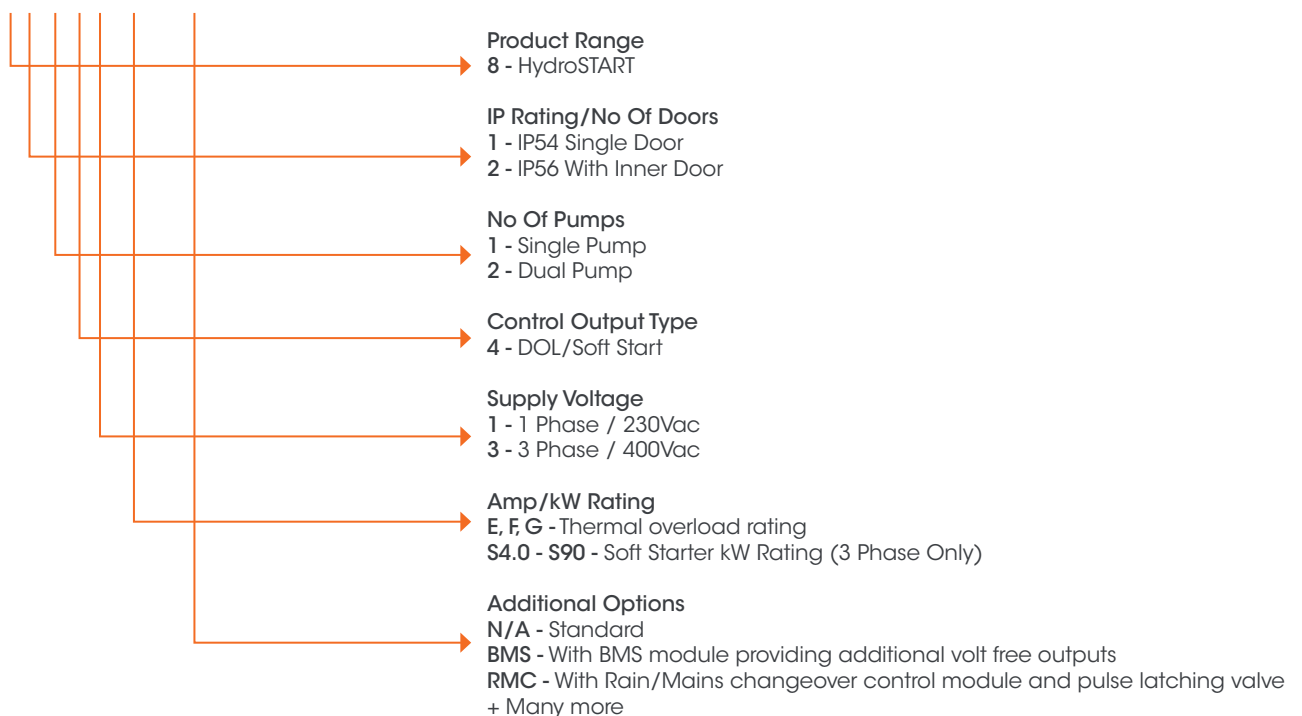
## FUNCTIONS

- **Level control mode –** Level empty operation controlled by up to 5 float switches: Low level, duty stop, duty start, standby start and high level
- **Pressure control mode –** Pressure boost operation controlled by up to 3 pressure switches: Duty start, standby start and low pressure
- **Duty sharing and alternation –** Duty pump alternates on pump start and after 30 minutes of continuous running in alternation mode, or 6 hours of accumulated running in recirculation mode
- **Staggered pump start –** Prevents excessive current draw and reduces water surge
- **Manual pump control –** Manual pump mode with optional 5 minute timeout to revert to auto mode
- **System enable input –** Enables and disables the system in auto mode
- **Static duty mode –** No duty alternation, for applications using smaller duty pump that always starts first
- **Smart chirp mode alarms –** Audible alarm automatically silences after 5 minutes if not muted, then chirps every 5 minutes

## FAULT PROTECTION

- **High level alarm –** Alarms after 15 minute delay with auto reset in stormwater mode, or after 1 minute with manual reset only in sewage mode
- **Low level protection –** Alarms and shuts down pumps on low level, manual reset only
- **Low pressure protection –** Alarms and shuts down pumps if low pressure input is closed for 60 seconds
- **Prime loss protection –** Alarms and shuts down running pumps if there is no flow for 30 seconds
- **Pump anti-seize protection –** Runs pumps periodically during low use to prevent seizing
- **Pump current sensing –** Provides adjustable pump overload, undercurrent and zero current protection

## HydroSTART CODE BREAKDOWN

# FPC-82143-E/BMS

**Product Range**
8 - HydroSTART

**IP Rating/No Of Doors**
1 - IP54 Single Door
2 - IP56 With Inner Door

**No Of Pumps**
1 - Single Pump
2 - Dual Pump

**Control Output Type**
4 - DOL/Soft Start

**Supply Voltage**
1 - 1 Phase / 230Vac
3 - 3 Phase / 400Vac

**Amp/kW Rating**
E, F, G - Thermal overload rating
S4.0 - S90 - Soft Starter kW Rating (3 Phase Only)

**Additional Options**
N/A - Standard
BMS - With BMS module providing additional volt free outputs
RMC - With Rain/Mains changeover control module and pulse latching valve
+ Many more

# HydroSTART RANGE - SINGLE DOOR IP54

| Code | No of Pumps | Phase / Voltage | Selectable Overload Options | Enclosure Size |
|------|-------------|-----------------|-----------------------------|----------------|
| FPC-81141 | 1 | 1 Phase / 230Vac | 0.1-6AMP, 5-16AMP | 400x300x150mm + |
| FPC-81143 | 1 | 3 Phase / 400Vac | 0.1-6AMP, 5-16AMP | 400x300x150mm + |
| FPC-81241 | 2 | 1 Phase / 230Vac | 0.1-6AMP, 5-16AMP | 400x300x150mm + |
| FPC-81243 | 2 | 3 Phase / 400Vac | 0.1-6AMP, 5-16AMP | 400x400x250mm + |

# HydroSTART RANGE - WITH INNER DOOR IP56

| Code | No of Pumps | Phase / Voltage | Selectable Overload Options | Soft Starter Rating Options | Enclosure Size |
|------|-------------|-----------------|-----------------------------|----------------------------|----------------|
| FPC-82141 | 1 | 1 Phase / 230Vac | 0.1-6AMP, 5-16AMP | N/A | 400x300x200mm + |
| FPC-82143 | 1 | 3 Phase / 400Vac | 0.1-6AMP, 5-16AMP | -S4.0 to -S90 | 400x400x200mm + |
| FPC-82241 | 2 | 1 Phase / 230Vac | 0.1-6AMP, 5-16AMP | N/A | 400x400x200mm + |
| FPC-82243 | 2 | 3 Phase / 400Vac | 0.1-6AMP, 5-16AMP | -S4.0 to -S90 | 400x400x200mm + |

**Note:** Enclosure sizes may increase for soft starters and additional options. For FLCs above 16 Amps, external thermal overloads are required, see overload rating table below

## THERMAL OVERLOAD RATINGS

| Code Suffix | Amp Rating |
|-------------|------------|
| -E | 12 - 18 Amp |

For FLCs greater than 18 Amps, soft starters are recommended, see soft starter rating table to the right

## SOFT STARTER GUIDE

| Code Suffix | kW Rating |
|-------------|-----------|
| -S4.0 | 4.0 kW |
| -S5.5 | 5.5 kW |
| -S7.5 | 7.5 kW |
| -S11 | 11 kW |
| -S15 | 15 kW |
| -S22 | 22 kW |
| -S30 | 30 kW |
| -S37 | 37 kW |
| -S45 | 45 kW |
| -S55 | 55 kW |
| -S75 | 75 kW |
| -S90 | 90 kW |

Additional kW ratings up to 160kW available on request

## ADDITIONAL OPTIONS

Additional options are added to the end of the code after the overload rating, eg: FPC-82143-LR/BMS. Most options can only be added to the inner door version

- **/BMS –** With BMS module providing volt free outputs for power on, low and high level, individual pump run and fault and 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 –** With generator input socket and manual changeover switch
- **/ATS –** With automatic generator changeover switch
- **/RCBO –** With individual pump RCBO protection

- **/CON –** With conductivity module and up to 5 probe inputs
- **/INT –** With intrinsically safe input barrier relays
- **/TF –** With tank fill control mode enabled
- **/MR –** With max run protection enabled
- **/PL –** With pump limit function enabled
- **/SRCAP –** With start and run capacitors
- **/RCAP –** With run capacitors
- **/BBHLS –** With battery backup high level alarm
- **/HWC –** Configured for hot water circulation
- **/TC –** With time clock for time of day operation
- **/SS –** With 316 stainless steel enclosure