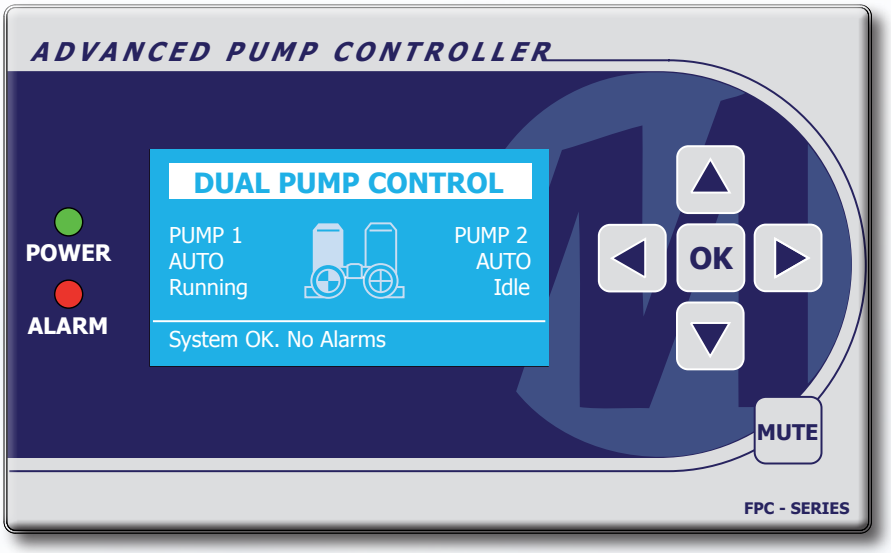
# ADVANCED
## Pump Control

ATelec®
Australia

# Introducing....

Building on the success of the FPC-300 Series Dual Pump and the FPC-150 Series Single Pump Controllers, MATelec Australia have now introduced the ***ADVANCED*** range of controllers to the market. This progressive step, further establishes MATelec Australia's profile as a market leader in Pump and Motor Control.



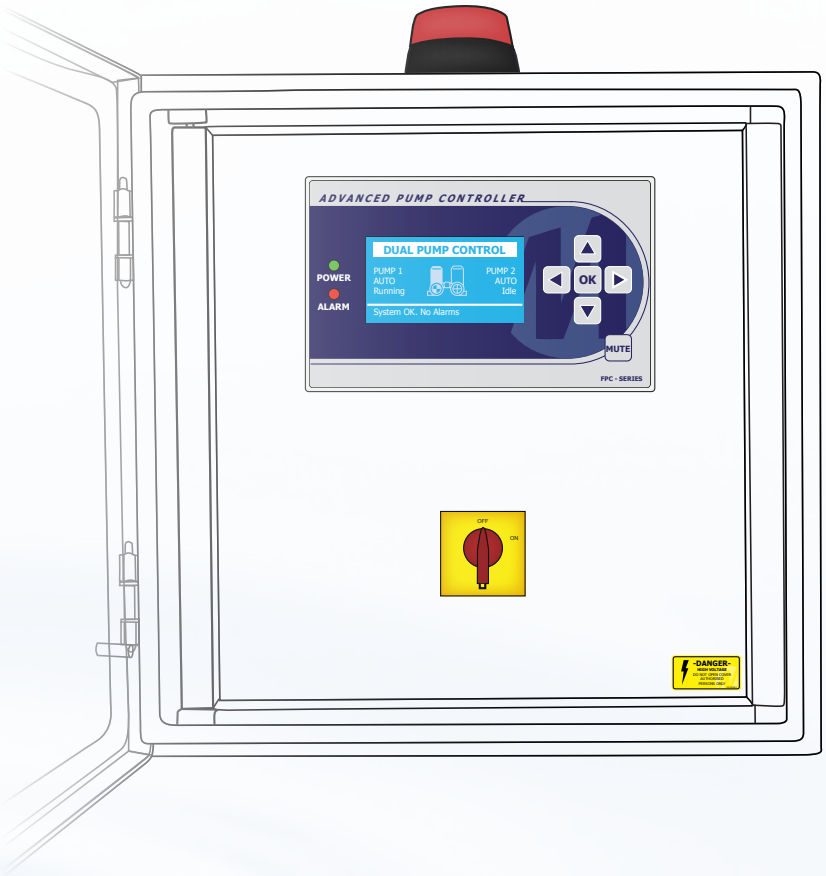

The introduction of an attractive backlit LCD screen, enables a level of operator intervention and setup customisation not seen in this type of controller before.
Whilst all features present in the FPC-300 and FPC-150 Series are still available in this new ***ADVANCED*** Pump Controller, the new major changes relate to operator customisation of all timing and parameter settings, data logging and the capability to interface with monitoring equipment using MODBUS.

Overall, an exceptionally versatile controller enabling the operator to optimise function parameters to best suit the application.

## Typical Applications:

- Submersible Sewage
- Submersible Stormwater
- Constant Pressure
- Hot Water Circulation
- Transfer Pumping

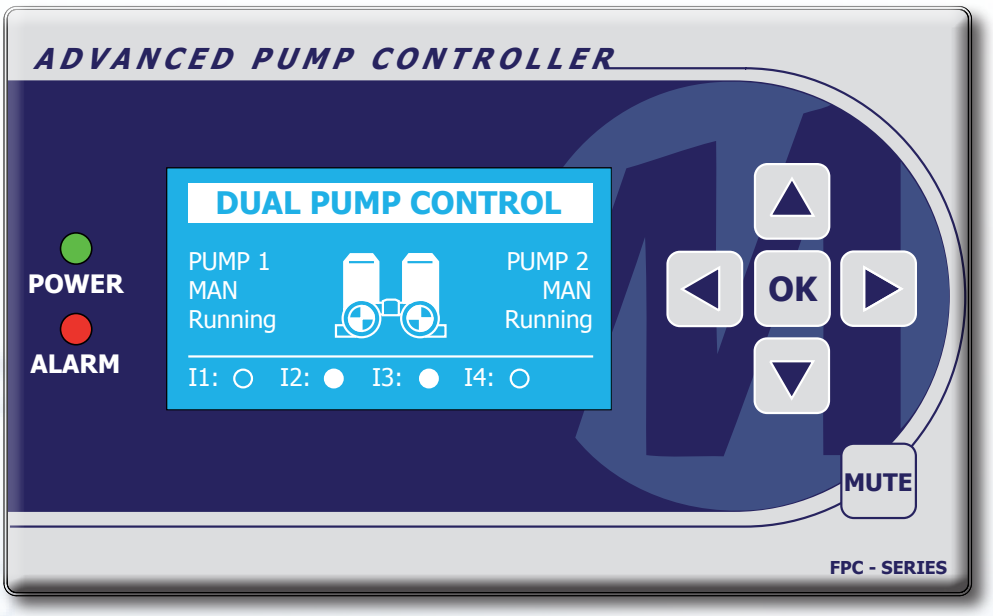
# Common Features




## Hardware

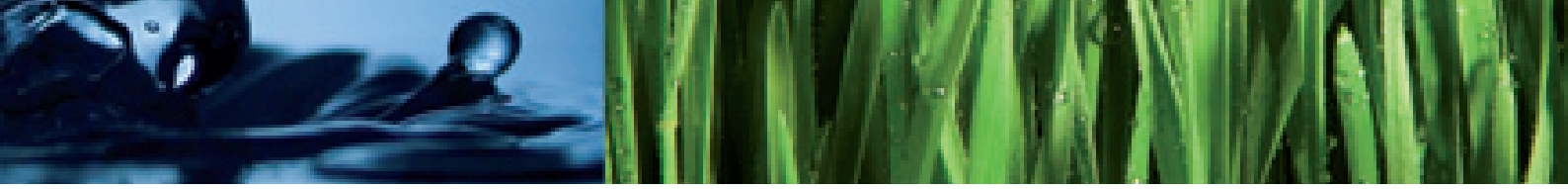
- IP65 Weather Proof, Powder Coated Lockable Metal Enclosure c/w removable gland plate
- Lockable Main Isolator
- Individual Pump Isolation (Dual Pump Control)
- Circuit Breaker protected Control Circuit
- Low Voltage Control and input Circuitry
- Advanced Micro Processor Control Module
- Distinctive, clear backlit LCD screen and navigation keys.
- Auto/Off/Manual Operation of Pump/s
- Thermal Overload Protection of Pump Motor/s
- Clear display of Pump Faults via screen
- Visual and Audible Alarms c/w Mute Switch
- User friendly, clearly labelled, Din Rail mounted, Input and Output Terminal Connection
- Individually Serial Numbered and logged for traceability and product support
- Owner/Operator, Installation and Operation Manual supplied with each controller

# Common Features




## Function

- Auto Alternation of Pump Duty (Dual Pump Control)
- Provision for 4 digital & 1 Analogue inputs (typically Low Level, Stop/Start, Standby In and High Level)
- Lamp, Strobe and Buzzer Test feature
- Level Alarm Delay feature avoiding nuisance tripping
- Input Status - Indication
- Maximum Run Time and Auto Alternation Feature (Dual Pump Control)
- Anti Seize/Freeze feature, for Low Use and Seasonal Pumping applications
- Maximum Idle Time Feature, for "pump out" of residual in Pump Well situations
- Smart "Auto Silencing" and "Chirp Mode" audible Alarm
- Delayed Start and Minimum Run Time Feature for Pressure Systems
- Delayed Standby Pump Start, avoids two motors starting simultaneously (Dual Pump Control)
- Optional "Time Out" on Manual Pump Mode
- No Flow/Pressure/Prime Loss - Inbuilt Timer feature
- MODBUS connection interface with monitoring system including access to logged data
- Data Logging capabilities - Password Protected
- Manipulation of all timing parameters - Password Protected
- Interconnectable with Remote Status Indicator panel, via simple data connection
- Interconnectable with Building Monitoring System Module, via simple data connection



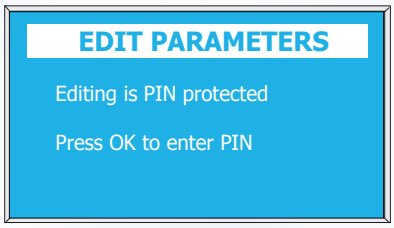
# Unique ***ADVANCED*** Features

## Menu System

During normal operation, the user, through the HMI (Human Machine Interface), is able to access many different functions related to both the Controller and the MODBUS interface. This is done via a number of different screens. Navigation between screens is simple using the left and right arrows. Many screens feature prompts indicating what functions the buttons perform.

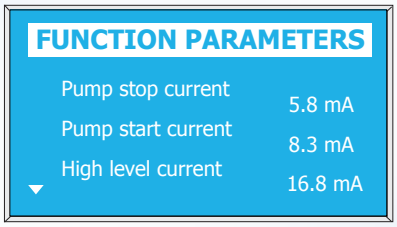

## PIN Number Protected

In order to modify anything other than the pump Auto/Off/Manual settings, the operator must enter a 4-digit PIN number. Once the PIN is correctly entered, the system remains unlocked for 15 minutes, after which the PIN will need to be re-entered. While unlocked, the PIN number can be modified through the configuration settings edit menu.



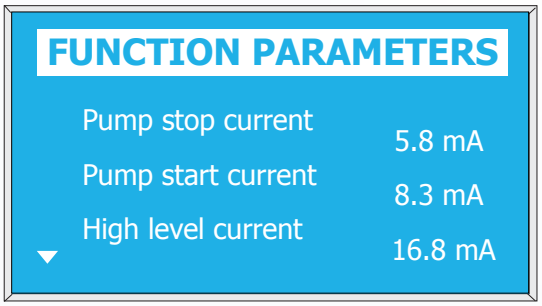

## 4-20mA Display Modes

When the Control Module 'Current Loop Mode' is enabled, the HMI is able to report the current 4-20mA reading (this is shown on the 'inputs' menu screen). In addition, it can convert this reading into one of two types of scale: metres (depth) or kPa (pressure). The metres scale can be adjusted for a maximum range of 0.1 to 25.0 metres (in 0.1m increments) and the kPa scale can be adjusted for a maximum range of 10 to 2500kPa in 10kPa increments.

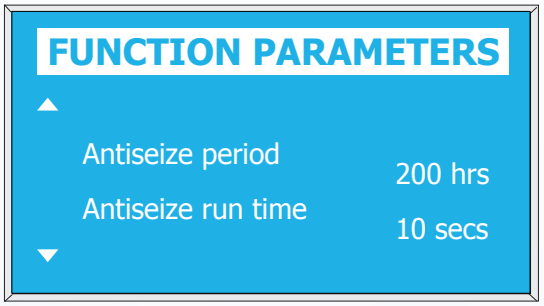


# Function Parameters

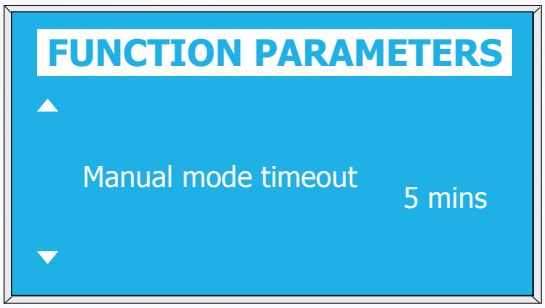
If the option to utilise an analogue device, such as a Hydrostatic or Pressure Transducer is used for the control of the pump/s, the setpoints for Start, Stop, Standby, and High Level can be very easily entered in this screen.



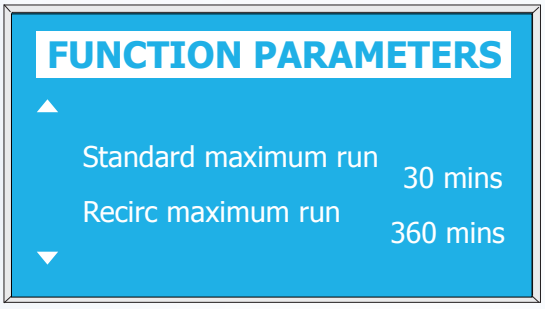

For low use or seasonal pump stations.
The frequency and duration of a forced pump run can be set up with this parameter option.
DIP Switch 4 enables this feature.



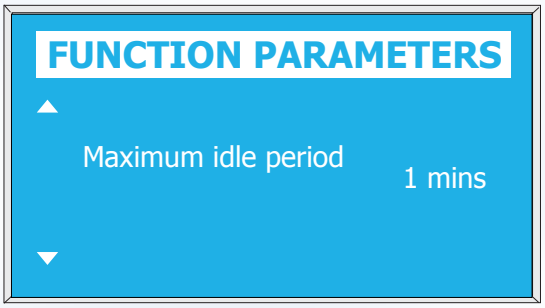

The controller allows for Manual Mode automatic time out to avoid pumps being inadvertently left in Manual Mode. This time parameter can be adjusted in this screen.
DIP Switch 6 enables this feature.

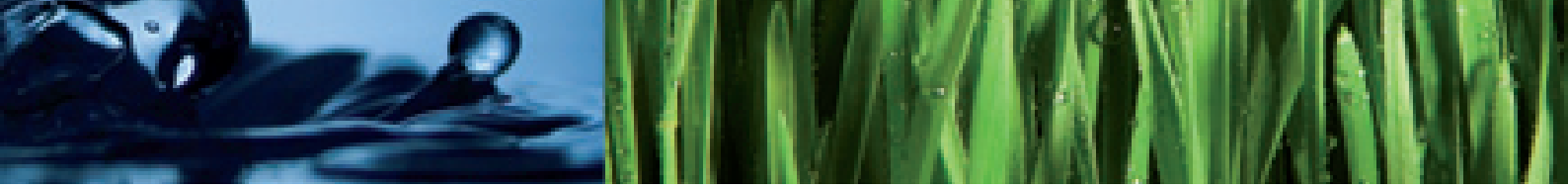



Standard maximum run time parameter is provided for pump types that are not 'Continuously Run' rated. The parameter is the time duration that a pump will be allowed to run for continuously before a forced alternation occurs. The recirculating pump parameter is for dual pump systems such as hot water circulator where pumps are designed to run for 12 or 24 hours before alternation takes place. DIP Switch 3 selects which setting applies.

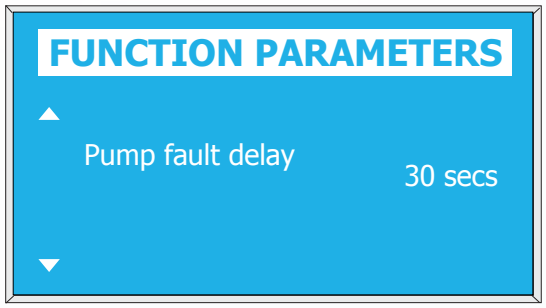



The maximum idle timer is a feature that will trigger a pump start if either pump has not run for the set time parameter, and input 2 (Stop Float Switch) contacts are closed. The pump will continue to run until the Stop Float Switch contacts open.

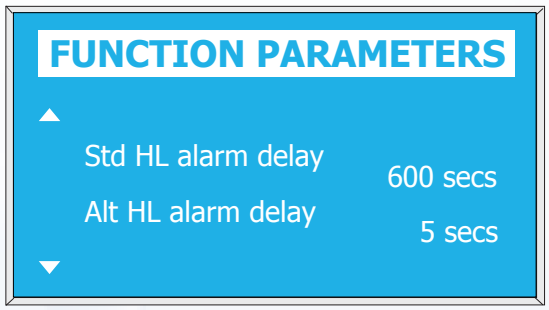




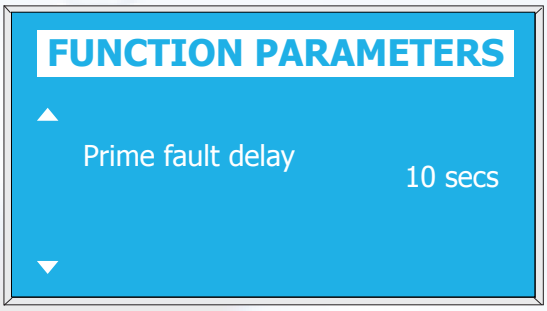
# Function Parameters



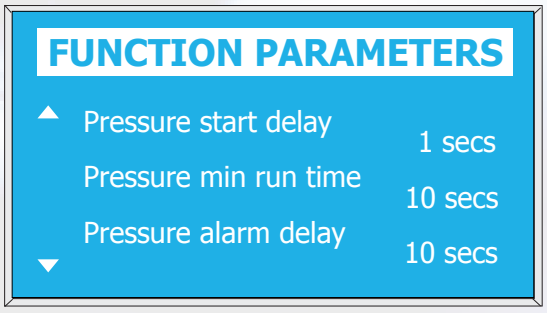

This parameter enables a delay to be set before a controller will respond to a fault input. This provides for systems that are prone to nuisance tripping. And momentary fault inputs are considered normal



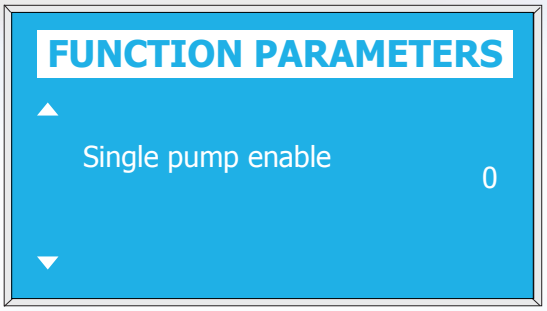

Alarm delay parameters can be manipulated to best suit particular applications. In storm water applications where high level conditions are quite probable, a long delay before a high level alarm is triggered, can be set, whereas, in a sewage application, a short, or no delay may be necessary. The standard high level alarm is auto re-setting, whereas the alternate high level alarm requires manual reset. DIP Switch 6 selects Alt High Level.




If selected, this parameter enables the operator to set the time value, after which time a prime loss, or flow loss alarm is triggered. This feature is enabled by way of the 'Mode' DIP Switches




In Pressure Mode, a start delay (to avoid pump chatter) and a minimum run time (to avoid pump hunting), can be set. A pressure alarm delay can also be enabled to trigger an alarm in 'burst main' situations. Pressure Mode is activated by way of DIP Switches 1 & 2.

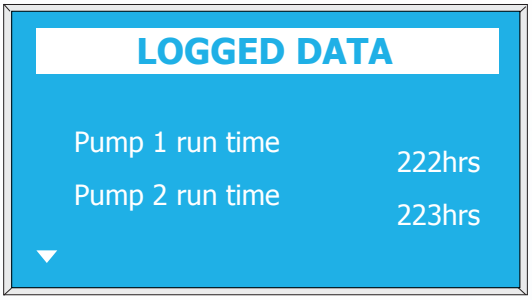



This mode can be selected if the controller is required to control one pump only. If selected, all other 'standby pump' parameters are adjusted automatically.

# Data Logging

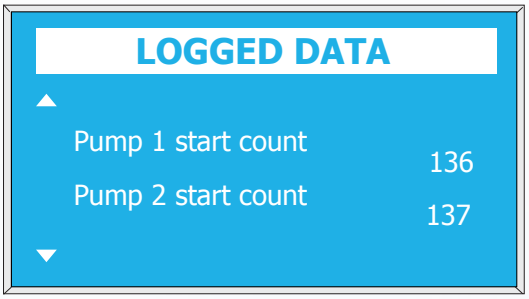
**Hours Run:**

- Pump 1
- Pump 2



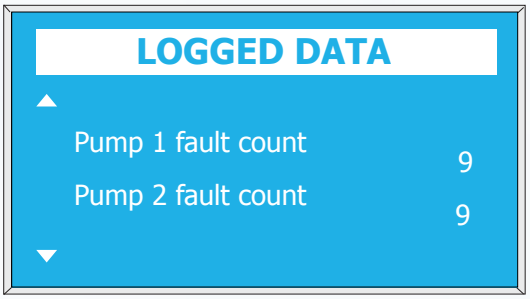

**Pump Start Counts:**

- Pump 1
- Pump 2




**Pump Fault Counts:**

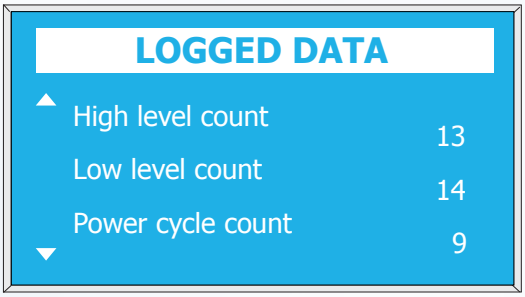
- Pump 1
- Pump 2




**High Level Counts:**

**Low Level Counts:**

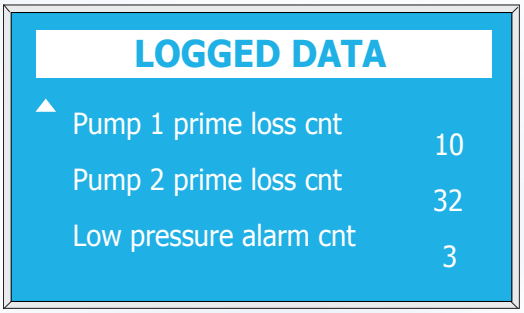
**Power Cycle Count**



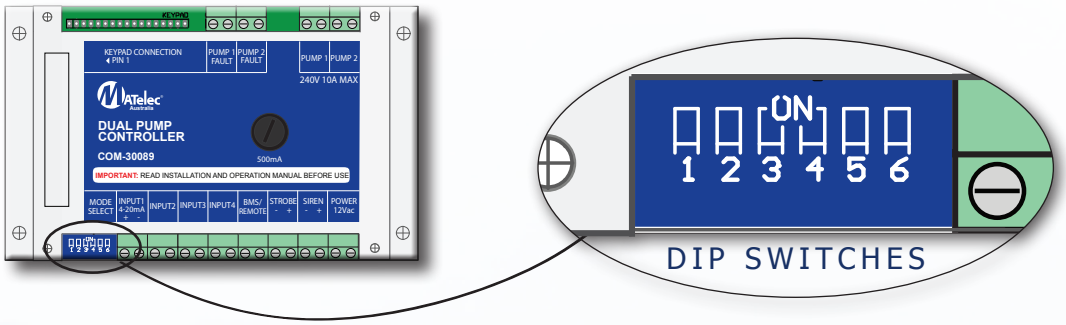

**Prime Loss Count:**

- Pump 1
- Pump 2

**Low Pressure Alarm Count:**



# DIP Switches Explained

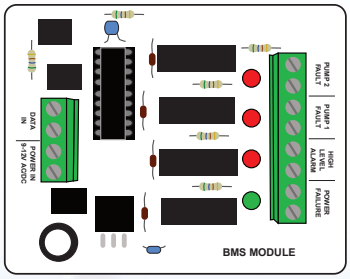



| APPLICATION | Input 1 | Input 2 | Input 3 | Input 4 | MODE |
|---|---|---|---|---|---|
| **SUBMERSIBLE - SEWAGE PUMPING SYSTEM** | | | | | |
| Automatic Pumps | - | - | Bridge | - | A |
| Automatic Pumps + High Level Float | - | - | Bridge | High Level | A |
| 2 Floats | - | - | Start/Stop | High Level | A |
| 3 Floats | - | Stop | Start | High Level | A |
| 3 Floats c/w Standby In | Standby Start | | Start/Stop | High Level | A |
| 4 Floats c/w Standby In | Standby Start | Stop | Duty Start | High Level | A |
| 4 Floats c/w Low Level Alarm | Low Level | Stop | Start | High Level | B |
| Transducer (4-20mA) + Optional High Level Float | Transducer | - | - | High Level | A |
| **SUBMERSIBLE - STORMWATER PUMPING SYSTEM** | | | | | |
| Automatic Pumps | - | - | Bridge | - | A |
| Automatic Pumps + High Level Float | - | - | Bridge | High Level | A |
| 2 Floats | - | - | Start/Stop | High Level | A |
| 3 Floats | - | Stop | Start | High Level | A |
| 3 Floats c/w Standby In | Standby Start | | Start/Stop | High Level | A |
| 4 Floats c/w Standby In | Standby Start | Stop | Duty Start | High Level | A |
| 4 Floats c/w Low Level Alarm | Low Level | Stop | Start | High Level | B |
| Transducer (4-20mA) + Optional High Level Float | Transducer | - | - | High Level | A |
| **HOT WATER RECIRCULATION SYSTEM** | | | | | |
| No Thermostat | - | - | Bridge | - | A |
| With Thermostat | - | - | Thermostat | - | A |
| **CONSTANT PRESSURE PUMPING SYSTEM** | | | | | |
| Automatic (Press Control) | - | - | Bridge | - | A |
| Automatic (Press Control) + Standby In Switch | - | - | Bridge | Standby In | A |
| 1 Pressure Switch | - | - | Start/Stop | - | A |
| 1 Pressure Switch + Prime Loss | Prime Loss Sw | - | Start/Stop | - | C |
| 2 Pressure Switches | - | Lead | Lag | - | D |
| 2 Pressure Switch + Pressure Loss Sw. | - | Lead | Lag | Pressure Loss PS | D |
| 2 Pressure Switch + Prime Loss Press/Flow Sw | Prime Loss Sw | - | Start/Stop | Low Press Sw | C |
| **TRANSFER PUMPING SYSTEM** | | | | | |
| 1 Pressure or Float Switch | - | - | Work Level | - | A |
| As above + Prime Loss | Prime Loss Sw | - | Work Level | - | C |
| 1 Pressure Start/Stop & Low Level Cut Out Float | - | - | Series Conn. | - | A |
| As above + Prime Loss | Prime Loss Sw | - | Series Conn. | - | C |

# Auxiliary Equipment

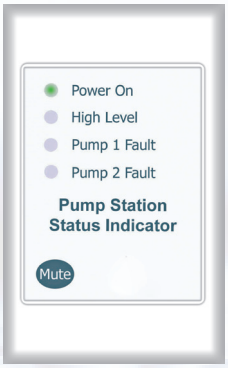
A unique feature of the FPC-300 Dual Pump Controller is the coded Data Output, which can be utilized to provide a signal to a remote, compatible device such as the BMS Module, Remote Status Indicator, or SMS Alarm Sender. A coded data signal, derived from the Pump Controller's micro processor, is conveyed through a low voltage, 2 wire connection and then decoded by the micro controller.

## BMS Module:

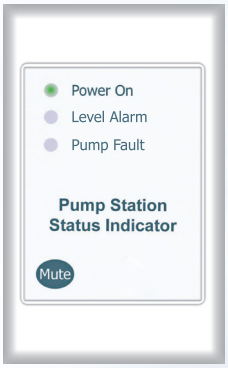



Once the signal is decoded the BMS micro controller in the Auxiliary Device provides four voltage free relay outputs for interfacing with a computer or other monitoring equipment.

## Remote Status Indicator:



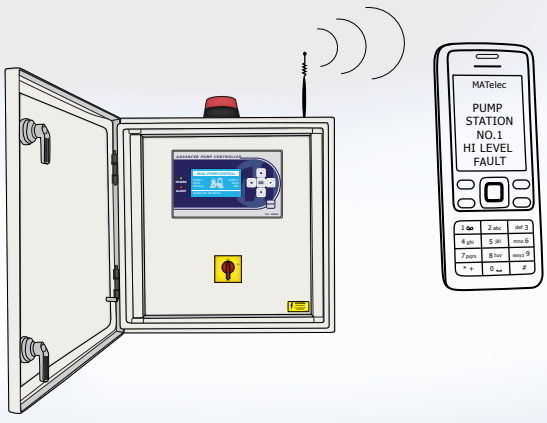

DUAL PUMP




SINGLE PUMP

As soon as an alarm condition occurs at the pump station, the appropriate LED on the indicator is illuminated and the Buzzer starts to sound. The Buzzer will automatically silence after 5 minutes. The Buzzer can also be muted by way of the Mute button. The Alarm light will remain illuminated until the fault condition is remedied.

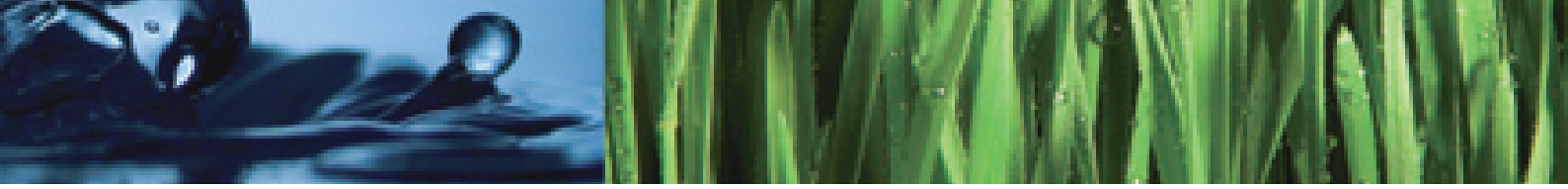
## SMS Alarm Sender




Once the signal is decoded the micro controller provides four inputs to the GSM modem which then in turn, sends SMS messages as configured.

Messages Include:

- Power Failure
- Level Alarm
- Pump 1 Fault
- Pump 2 Fault



# The Range

| | Product Code | Voltage Rating | Contactor Rating | Overload Rating | Enclosure Size |
|---|---|---|---|---|---|
| Dual Pump | FPC-36020-AA | 240Vac | 18Amp | 1.6-2.5 Amp | 400Hx400Wx200D |
| | FPC-36020-A | 240Vac | 18Amp | 2.5 - 4 Amp | 400Hx400Wx200D |
| | FPC-36020-B | 240Vac | 18Amp | 4 - 6 Amp | 400Hx400Wx200D |
| | FPC-36020-C | 240Vac | 18Amp | 7 - 10 Amp | 400Hx400Wx200D |
| | FPC-36020-D | 240Vac | 18Amp | 9 - 13 Amp | 400Hx400Wx200D |
| | FPC-36020-E | 240Vac | 18Amp | 12 - 18 Amp | 400Hx400Wx200D |
| | FPC-36040-AA | 415Vac | 18Amp | 1.6-2.5 Amp | 400Hx400Wx200D |
| | FPC-36040-A | 415Vac | 18Amp | 2.5 - 4 Amp | 400Hx400Wx200D |
| | FPC-36040-B | 415Vac | 18Amp | 4 - 6 Amp | 400Hx400Wx200D |
| | FPC-36040-C | 415Vac | 18Amp | 7 - 10 Amp | 400Hx400Wx200D |
| | FPC-36040-D | 415Vac | 18Amp | 9 - 13 Amp | 400Hx400Wx200D |
| | FPC-36040-E | 415Vac | 18Amp | 12 - 18 Amp | 400Hx400Wx200D |
| Single Pump | FPC-15605-AA | 240Vac | 18Amp | 1.6-2.5 Amp | 400Hx400Wx200D |
| | FPC-15605-A | 240Vac | 18Amp | 2.5 - 4 Amp | 400Hx400Wx200D |
| | FPC-15605-B | 240Vac | 18Amp | 4 - 6 Amp | 400Hx400Wx200D |
| | FPC-15605-C | 240Vac | 18Amp | 7 - 10 Amp | 400Hx400Wx200D |
| | FPC-15605-D | 240Vac | 18Amp | 9 - 13 Amp | 400Hx400Wx200D |
| | FPC-15605-E | 240Vac | 18Amp | 12 - 18 Amp | 400Hx400Wx200D |
| | FPC-15607-AA | 415Vac | 18Amp | 1.6-2.5 Amp | 400Hx400Wx200D |
| | FPC-15607-A | 415Vac | 18Amp | 2.5 - 4 Amp | 400Hx400Wx200D |
| | FPC-15607-B | 415Vac | 18Amp | 4 - 6 Amp | 400Hx400Wx200D |
| | FPC-15607-C | 415Vac | 18Amp | 7 - 10 Amp | 400Hx400Wx200D |
| | FPC-15607-D | 415Vac | 18Amp | 9 - 13 Amp | 400Hx400Wx200D |
| | FPC-15607-E | 415Vac | 18Amp | 12 - 8 Amp | 400Hx400Wx200D |

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