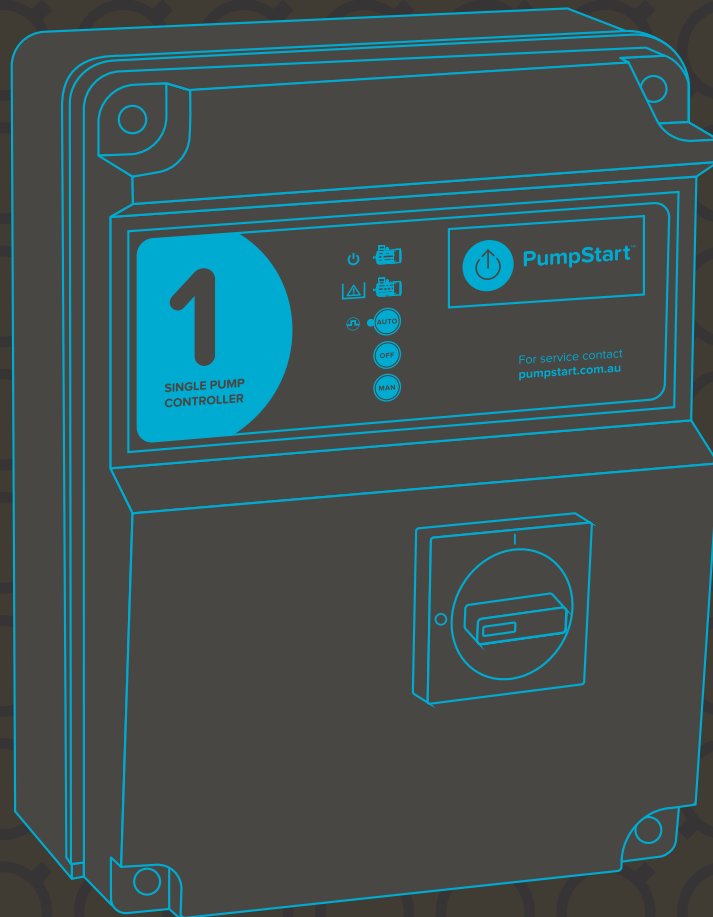


**Owner's Operation  
Manual**





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**CONTENTS**

Overview.....	4
Safety .....	4
Benefits.....	4
Main Features .....	4
Handling .....	4
Applications and Working Limits .....	5
Technical Features .....	5
Standard Operation.....	6
Installation .....	7
Circuit Board Description - Single Phase .....	8
Circuit Board Description - Three Phase .....	9
Level Sensor Function .....	10
Regulation and Calibration .....	10
Stopping the Pump.....	11
Lights and Pushbuttons on the Front Panel .....	11
Maintenance .....	11
Waste Disposal .....	11
Spare Parts .....	11
Warranty.....	12
Connection Diagrams - Single Phase.....	13
Connection Diagrams - Three Phase .....	15
Electrical Circuit Diagram - Single Phase .....	17
Electrical Circuit Diagram - Three Phase.....	18

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**OVERVIEW - SINGLE PUMP CONTROL**

The purpose of this manual is to provide the necessary information for the proper installation, use and maintenance of your PumpStart controller. The user should read this manual before operating the unit. Improper use may cause damage to the unit and lead to the forfeiture of the warranty coverage.

**SAFETY**

The following symbols, accompanied by the words "Danger", "Warning" indicate the potential hazard resulting from failure to observe the associated warning, as specified below.



**DANGER  
RISK OF  
ELECTRIC  
SHOCK**

Failure to observe this warning may result in electric shock



**DANGER**

Failure to observe this warning may cause personal injury and/or damage to property



**WARNING**

Failure to observe this warning may cause damage to the pump, the unit or the system

**CAUTION**

Make sure the pumps are fully primed before you start them.

**CAUTION**

The control panel must be connected by a qualified electrician in compliance with the electrical regulations in force.

**CAUTION**

The electrical pump or the motor and the panel must be connected to an efficient in compliance with grounding system in compliance with the electrical regulations in force.

**CAUTION**

Ground the unit before carrying out any other operation.

**CAUTION**

The electric pump or the motor can start up automatically.

**CAUTION**

As a general rule, always disconnect the power supply before proceeding to carry out any operation on the electrical or mechanical components of the unit or system.

**BENEFITS**

- Motor overload protection by amperage setting and regulation (trimmer on the main electronic board)
- Dry running protection by float switch or probes
- Different applications (Clean and wastewater pumping/pressurisation/ other type of motors)
- Alarm Output (normally open or normally closed)
- Alarm Output 12V (Maximum level)

**MAIN FEATURES**

- Input for 3 unipolar probes for running and protection of the pump
- In-box Dip-switch for running selection
- In-box switch for probes' sensitivity setting
- Input for alarm activated by float switch (activate a 12Vcc 200mA alarm output)
- Red light for level alarm (min and max)
- Input for Klixon (motor thermal protection T1)
- Red light for Klixon alarm

**HANDLING**


**DANGER**



**WARNING**

- The panel must be handled with care as falls and knocks can cause damage without any visible external signs.
- The unit must be installed in a sheltered, well ventilated, non-hazardous environment.

## APPLICATION AND WORKING LIMITS



**DANGER  
RISK OF  
ELECTRIC  
SHOCK**

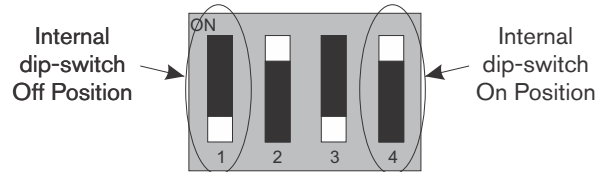


**DANGER**

- The controller is designed for controlling 1 motor (Single or 3 Phase) or electric pump used in pressurisation systems or in applications for emptying wells or water tanks with multi-contact float switches.
- Global Water shall not be liable for any damage caused or suffered by the unit as a result of its unauthorised or improper use.

## TECHNICAL FEATURES

- Electronic control panel
- Power supply: 1~50Hz 230V  
PumpStart-UP-M Single Phase
- Power supply: 3~50Hz 400V  
PumpStart-UP-T Three Phase
- Control input from Normally Open contact Float/Pressure switch
- Alarm control input from Normally Open contact Float/Pressure switch
- Control input with 3 min level sensors
- Input for motor winding thermal protection
- Sensors suitable for use with non flammable conductive fluids (not included)
- Incorporated selector for sensor operation in "Filling/Emptying" node (dip-switch 1 and 2)
- Incorporated sensor sensitivity adjustment
- Push buttons for operating motor in "Automatic-Off-Manual" modes
- "Mains Power On" LED
- "Alarm" LRD for min/max water level
- "Motor On" LED
- "Motor Protection Enabled" LED
- "Automatic" LED (this is on the Automatic Push Button)
- Restore protection button
- Adjustable motor protection (Motor Current Trimmer: 2<>22A or 20<>44A)
- Protection activation time: 5 seconds
- Incorporated dip-switch for overriding the "Motor cut-out" (dip switch 4)
- Internal "Sensors alarm" cut off dip-switch (dip-switch 3)
- Internal "amperometric alarm cut-in delay" cut-off switch (jumper ESC.TIM.TA)
- Motor protection fuses
- Auxillary protection fuse
- Alarm output with switching No-C-Nc contacts, capacity 16A 250V (resistive load)
- Single-phase version adapted for the insertion of a capacitor (not included)
- Main circuit-breaker with door lock
- Output with cable clamps
- ABS box
- IP55 protection
- Ambient operating temperature -5° to 40°C
- Relative humidity 50% at 40°C (not condensed)



*NOTE: Do not use the product in environments where dust, acids, corrosive and/or flammable gases etc. are present.*

## STANDARD OPERATION



**DANGER**



**DANGER RISK OF  
ELECTRIC SHOCK**



**WARNING**

- The "Mains power on" LED comes on to indicate that the board is working properly.
- The motor can be governed directly by the operator with manual (**Manual**) or by remote signal (**Automatic**) by means of the "Automatic - Off - Manual" buttons; (when the automatic button is pushed the related LED above the button lights and the control panel is ready to receive remote signals from the sensors and floats).
- The motor works in Automatic by means of the **G1** command that can be any clean contact (e.g. float or pressure switch).
- The min/max level is controlled by the sensor commands based on how the internal **DIP-SWITCH 1 AND 2** are set:

**1=ON 2:OFF -> Emptying**

**1=OFF 2=ON -> Filling**

*ATTENTION: it is dangerous to set both the dip-switches to on or off position: in first case the motor never runs without level sensor deactivation; in second case the motor doesn't start with any level.*

*The sensor control input can also be used for the Start/Stop operations, closing the G1 control with a wire jumper and respectively connecting two controls (e.g. floats) between "Com-Min (Stop float)" and "Com-Max (Start float)" in place of the 3 sensors.*

*N.B.: When using this configuration the sensors alarm must be overridden by SETTING THE DIP-SWITCH 3 TO OFF POSITION, otherwise the "level alarm" LED for the min/max level will come on (based on the Empty/Fill setting) and the alarm output will be activated.*

*3=ON -> Level sensor alarm enabled*

*3=OFF -> Level sensor alarm disabled*

- In the event the "**Min/Max level**" sensors are tripped, the motor stops, the "**LEVEL ALARM**" light comes on and the Alarm output relay is tripped.

- The sensitivity of the level sensors can be adjusted by means of the "**SENS. SONDE**" (Sensor sensitivity) Trimmer, based on the conductivity of the liquid in which they are immersed. By increasing the sensors sensitivity, correct functioning is also possible in the presence of liquid with poor conductivity.
- The green pilot light "**MOTOR ON**" indicates that the motor is functioning.
- If the overload protection is tripped, the motor stops and the red "**PROTECTION ON**" and "**LEVEL ALARM**" LED lights on. Push **RESET** to reset the alarm.
- Check for the cause of the malfunction before restoring the motor to operation.
- The motor overload protection can be overridden by setting **dip-switch 4**.
  - 4=ON -> Amperometric protection enabled:** "**PROTECTION ON**" and "**LEVEL ALARM**" LEDs light + motor stops + alarm output.
  - 4=OFF -> Amperometric protection disabled:** "**PROTECTION ON**" LED lights without motor stopping and without alarm output.
- In this manner the "**PROTECTION ON**" alarm LED is activated but the motor continues to run and the alarm output does not activate.
- The amperometric protection tripping current can be adjusted by means of the **MOTOR CURRENT** Trimmer, based on the rated absorption of the motor; the adjustment can be made from a minimum of 2A to a maximum of 22A. (To determine I<sub>max</sub> refer chart model).
- The cut-in delay time is fixed at s seconds and can be overridden during setting by bridging the "ESC.TIM.TA" Jumper.

*GENERAL NOTES : During the calibration for Over-Load Protection, start the motor 2-3 times to check for correct operation.*

## INSTALLATION



**DANGER**



**DANGER RISK OF  
ELECTRIC SHOCK**



**WARNING**

### Line of supply current

- Connect the unit to ground before carrying out any other operation.
- The voltage input corresponds to the data written on the panel and on the pump.  
(230V ± 10% 50Hz x **PumpStart-UP-M**)  
(400V ± 10% 50Hz x **PumpStart-UP-T**)
- Make sure that the power supply cable can bear the nominal current and connect it to the terminals of the general switch of the control panel.
- If the cables are exposed, they must be appropriately protected.
- The line must be protected with a differential circuit breaker installed in accordance with the regulations locally in force.

### Line of motor power supply

- Connect the unit to ground before carrying out any other operation.
- The voltage input corresponds to the data written on the motor/s.  
(230V ± 10% 50Hz x **single phase**)  
(400V ± 10% 50Hz x **three phase**)
- When starting the motor make sure that it rotates in the direction indicated by an arrow printed on the motor/s.

### Line of external control

- It is possible to control the motor in "**Automatic**" using a free voltage contact normally open as a float switch or a pressure switch.
- It is a very low voltage line and not a power line. Connect anyway with the control panel switched off and with the circuit breaker disconnected.

## Mounting

- Remove the 4 cover retaining screws and carefully lift cover from base, taking care not to damage ribbon cable connections on circuit board and front cover board.
- Drill out required mounting holes set into rear cover as indicated in Fig.1 at right
- Care must be taken to remove all swarf from inside of controller after drilling.
- Controller is mounted to surface by means of appropriate fixings according to type of mounting surface.
- Care must also be taken not to allow any metal swarf from fixing screws to remain inside of controller.
- Cable entry is made through pre-drilled holes in base of control box. Glands are supplied.
- Holes not used for cable entry must be sealed to maintain IP55 integrity.
- Do not install the controller close to objects in contact with flammable liquids, water or gas.

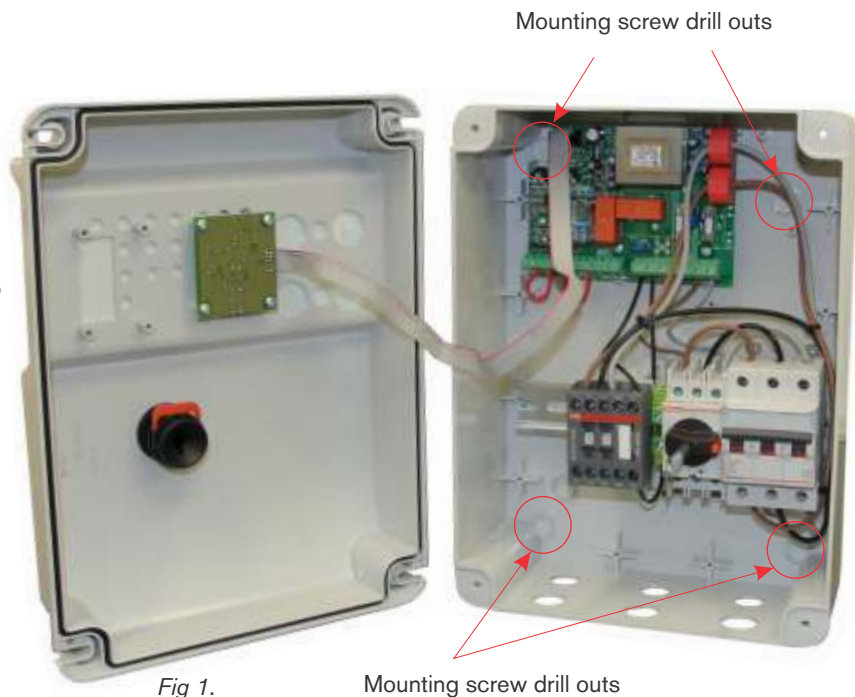


Fig 1.

## CIRCUIT BOARD DESCRIPTION - PumpStart-UP-M (Single Phase 230V)



**DANGER**



**DANGER RISK OF  
ELECTRIC SHOCK**



**WARNING**

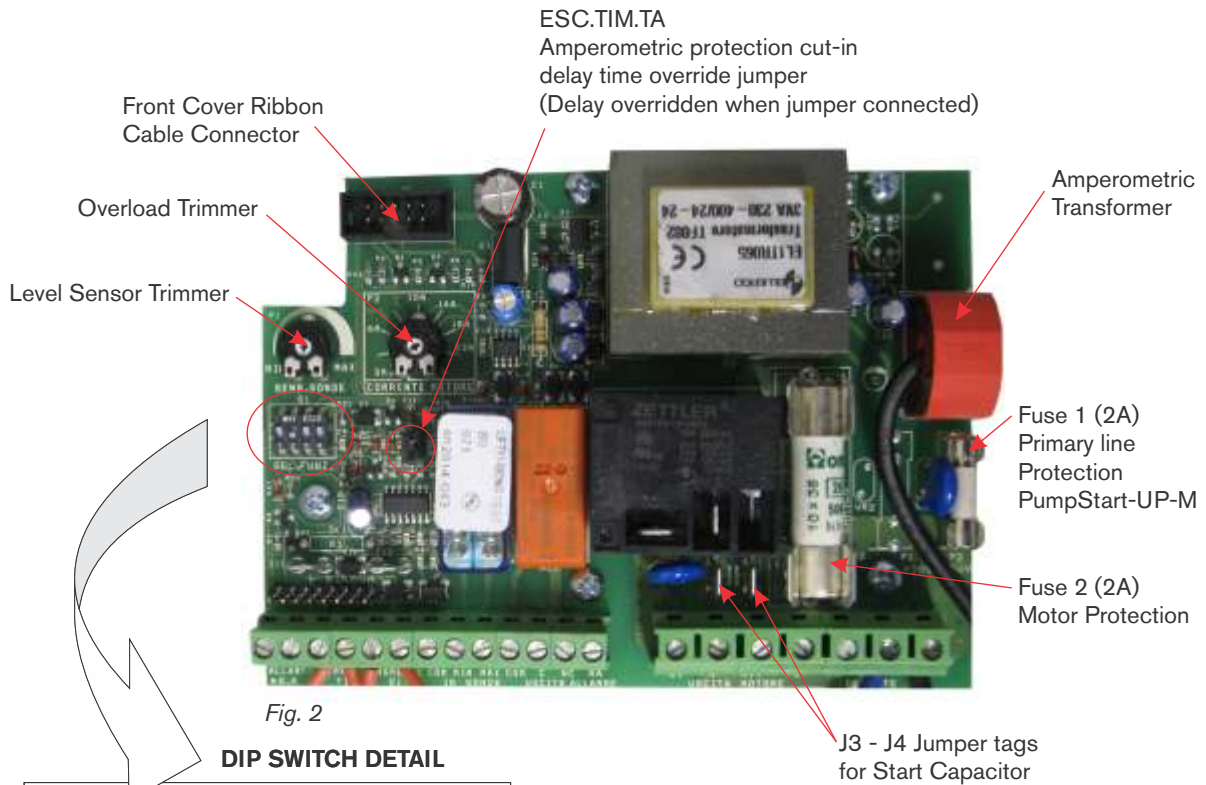

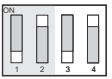






Fig. 2

### DIP SWITCH DETAIL

1 = ON; 2 = OFF EMPTYING	
1 = OFF; 2 = ON FILLING	
3 = OFF LEVEL ALARM DISABLED	
3 = ON LEVEL ALARM ENABLED	
4 = OFF AMPEROMETRIC PROTECTION DISABLED	
4 = ON AMPEROMETRIC PROTECTION ENABLED	

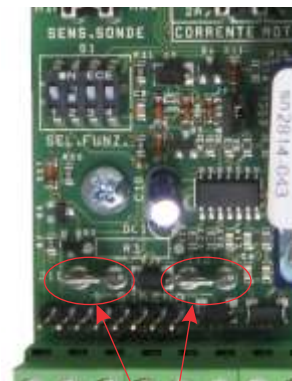


Fig. 3

12Vcc output for Siren  
Only activated by high level float switch  
(Alarm G.A.)



## CIRCUIT BOARD DESCRIPTION - PumpStart-UP-T (Three Phase 400V)



**DANGER**



**DANGER RISK OF  
ELECTRIC SHOCK**



**WARNING**

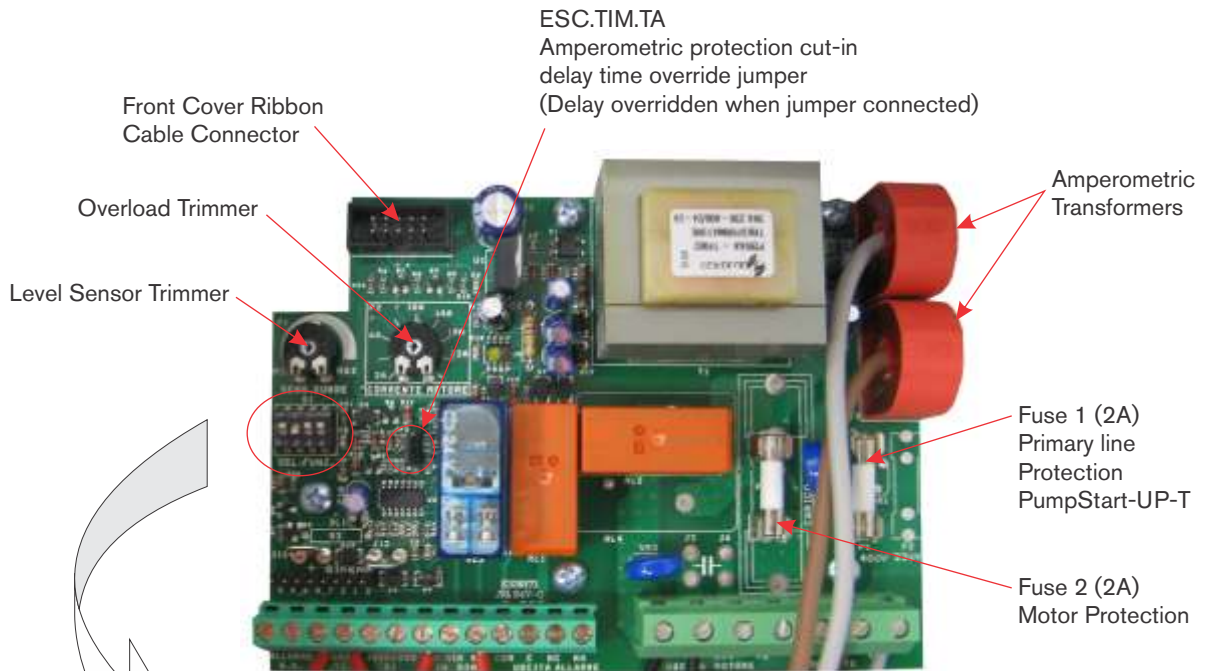

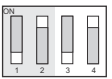






Fig. 4

### DIP SWITCH DETAIL

1 = ON; 2 = OFF EMPTYING	
1 = OFF; 2 = ON FILLING	
3 = OFF LEVEL ALARM DISABLED	
3 = ON LEVEL ALARM ENABLED	
4 = OFF AMPEROMETRIC PROTECTION DISABLED	
4 = ON AMPEROMETRIC PROTECTION ENABLED	

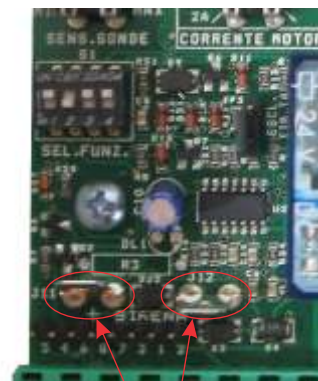


Fig. 5

12Vcc output for Siren  
Only activated by high level float switch  
(Alarm G.A.)

## LEVEL SENSOR FUNCTION - Emptying/Filling



**DANGER**



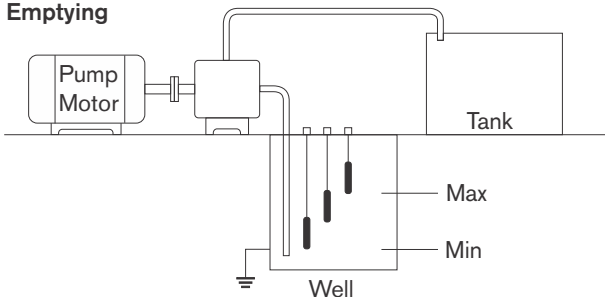
**DANGER RISK OF  
ELECTRIC SHOCK**



**WARNING**

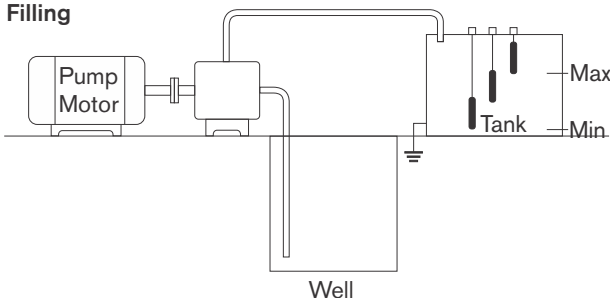
- You can select the type of operation with the sensors working in Emptying/Filling mode by setting Dip-switches 1 and 2 on the circuit board.

### Emptying



- Set the Dip-switches **1 = ON** and **2 = OFF**
- The control panel is enabled only when all the sensors are immersed in the fluid (**COM-MIN** and **COM-MAX** contacts closed).
- The motor is enabled by the closing of the G1 contact (float/pressure switch).
- The motor is cut-out by the sensors when the **COM-MIN** contact opens.
- The alarm output is also enabled.

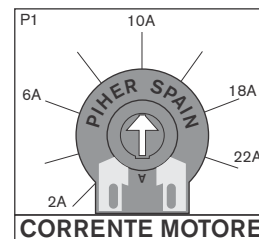
### Filling



- Set the Dip-switches **1 = OFF** and **2 = ON**
- The motor is enabled only when the two MIN and MAX sensors are not covered by the fluid (**COM-MIN** and **COM-MAX** contacts open).
- The motor is enabled when the G1 contact closes (float/pressure switch).
- The motor is cut-out by the sensors when the **COM-MAX** contact closes.
- The alarm output is also enabled.

## REGULATION AND CALIBRATION

- Before the initial start up the "Motor protection from overload" has to be calibrated using the Overload Trimmer mounted on the circuit board. (Refer to Fig 2 or 4).
- The protection delay is set at a fixed time of 4 seconds.
- During the calibration process close the jumper **ESC.TIM.TA** (refer to Fig 2 or 4) to disable the delay protection.
- The regulation of Current Protection depends on the value of calibration set on the board.



- Set the current protection of the motor at a value 10-20% greater of the nominal current.
- Example, for a motor with nominal input current of 10A set the trimmer to 12A.
- When setting is complete, reset the protection tripping current delay time by removing the **ESC.TIM.TA** jumper.

### Example of Current Protection for a Three Phase Motor

Suppose we want to set the Protection Overload for a Three Phase 5.5kW Motor with a nominal supply current of about 12A.

#### Calibration Steps

- Override the current protection cut-in delay time by connecting the **ESC.TIM.TA** jumper.
- Set the maximum value with the internal regulator on the "Protection Tripping Current" trim by turning clockwise.
- Turn the motor on and, with the "Protection Tripping Current" trim, reduce until the Red "Motor Protection" LED comes on and the motor stops. (This should correspond approximately to the rated current ...12A).
- Increase the "Protection Tripping Current" trim by approximately 10-20% of the previously set value. (At approx 15A).
- Reset the Protection Cut-in delay by removing the **ESC.TIM.TA** jumper. (The delay is used to allow for the initial inrush current).
- At this point the protection is set and the control panel can be set for the desired type of operation, ie. Emptying or Filling.
- The motor overload cut-out can be overridden by setting the Dip-switch 4 to the OFF position.
- In this way the protection cut-in will be signalled by the "Motor Protection Enabled" light, but the motor will be blocked.



## STOPPING THE PUMP



### WARNING

The motor can be switched off in the following ways:

- In "Manual", the motor stops when the "MANUAL" button is released.
- In "Automatic", the motor stops when the G1 switch is no longer enabled or when the level sensors, if used, give a max/min level alarm based on how the Dip-switches 1 and 2 have been set or by pushing the "RESET" button.
- Turning the general switch with door interlock to "0"

## LIGHTS AND PUSHBUTTONS ON THE FRONT PANEL



Indicates the Main Power is on (Green Light).



Indicates the Alarm Level is on (Red Light).



Indicates that the Motor is running (Green Light).



Contemporary lighting indicates that the overload protection is on (Red Light).



Indicates that the thermal protection of winding is tripped (Red Light).



Keeping it switched, the motor starts by-passing every alarm, when released the motor is disconnected.



Disconnect the motor and reset the working protections.



When pushed, the automatic mode is activated which is indicated by the Green LED, the board is ready to receive signals from the floats, pressure switches or sensors.

## MAINTENANCE



### DANGER



### DANGER RISK OF ELECTRIC SHOCK



### WARNING

- PumpStart does not require any routine maintenance provided that working limits are observed.
- If for any reason any of the mechanical components need replacement or maintenance, the operation must be performed by a qualified experienced person, in compliance with the safety/electrical regulations in force.

*IMPORTANT: Make sure that the PumpStart is disconnected from the power prior to commencement of any work on the unit.*

## WASTE DISPOSAL

- After the control panel has been installed and started, the customer must provide for the appropriate elimination and disposal of the waste materials according to the legislation locally in force.
- If the control panel or parts of it must be taken out of service and dismantled, follow local regulations regarding sorted waste disposal. Refer to the appropriate recycling centres.

*CAUTION: Contamination of the environment with hazardous substances such as battery acid, fuel, oil, plastic, copper, etc., may cause serious damage to the environment and endanger people's health.*

## SPARE PARTS



### DANGER



### WARNING

Always state the exact model identification number and construction number when requesting technical information or spare parts.

- Use only original spare parts when replacing any faulty components.
- The use of unsuitable spare parts can cause malfunctions, personal injury and damage to property.

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**WARRANTY**

Warranty is limited to replacement or repair, at Manufacturers' discretion, of any parts or equipment without removal and reinstallation cost for a period of TWELVE (12) months from date of installation, provided such part or equipment that is deemed by the respective manufacturer to be faulty.

Any work done on-site to inspect or remedy faults that are subsequently not accepted as being under warranty by the manufacturer, or are caused by misuse, fair wear or tear, the lack of preventative maintenance, or by not carrying out standard operating procedures, will be charged at parts and labour and travelling time rates applicable at the time.

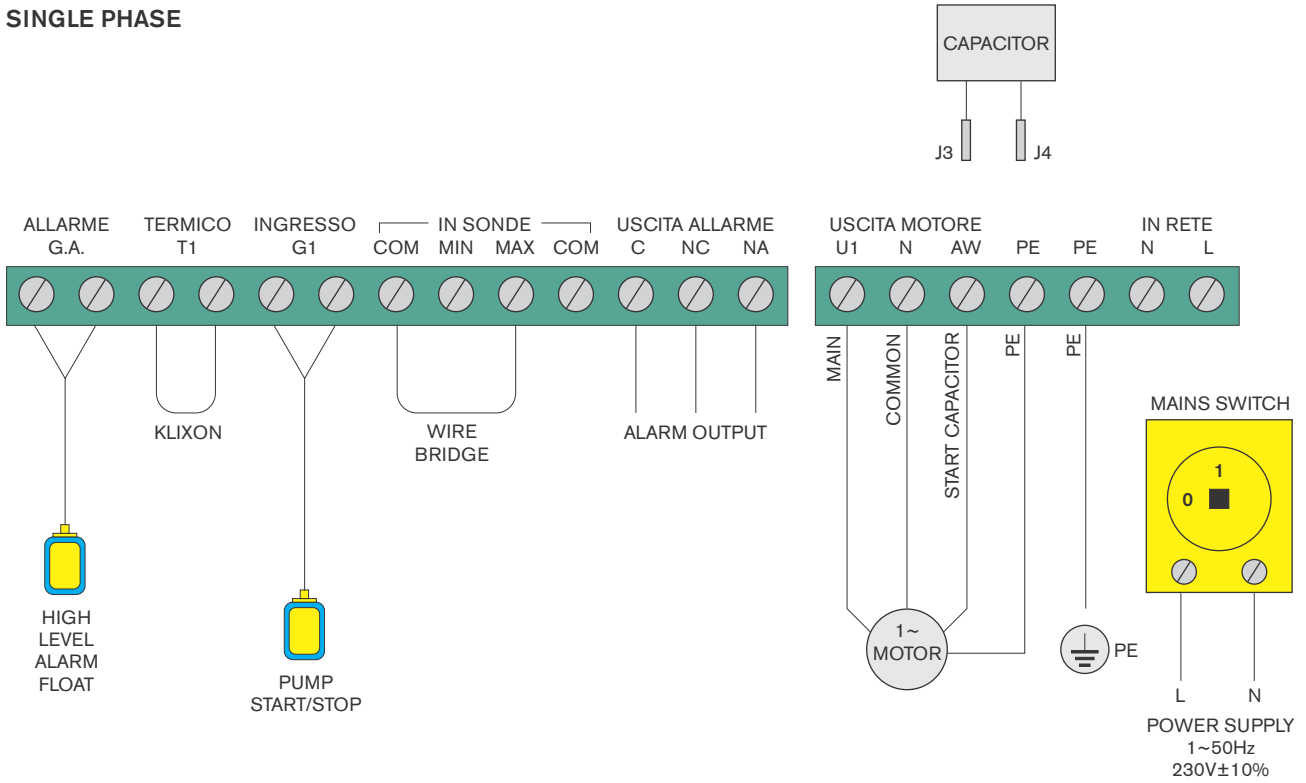
If a buyer requires our service in respect of site inspection or service outside of what is covered by Manufacturers'

warranties, then the buyer should enter into a separate agreement with Global Water in respect to the same. In the event of no such separate agreement, all operation, calibrating, cleaning and maintenance of plant is the responsibility of the buyer.

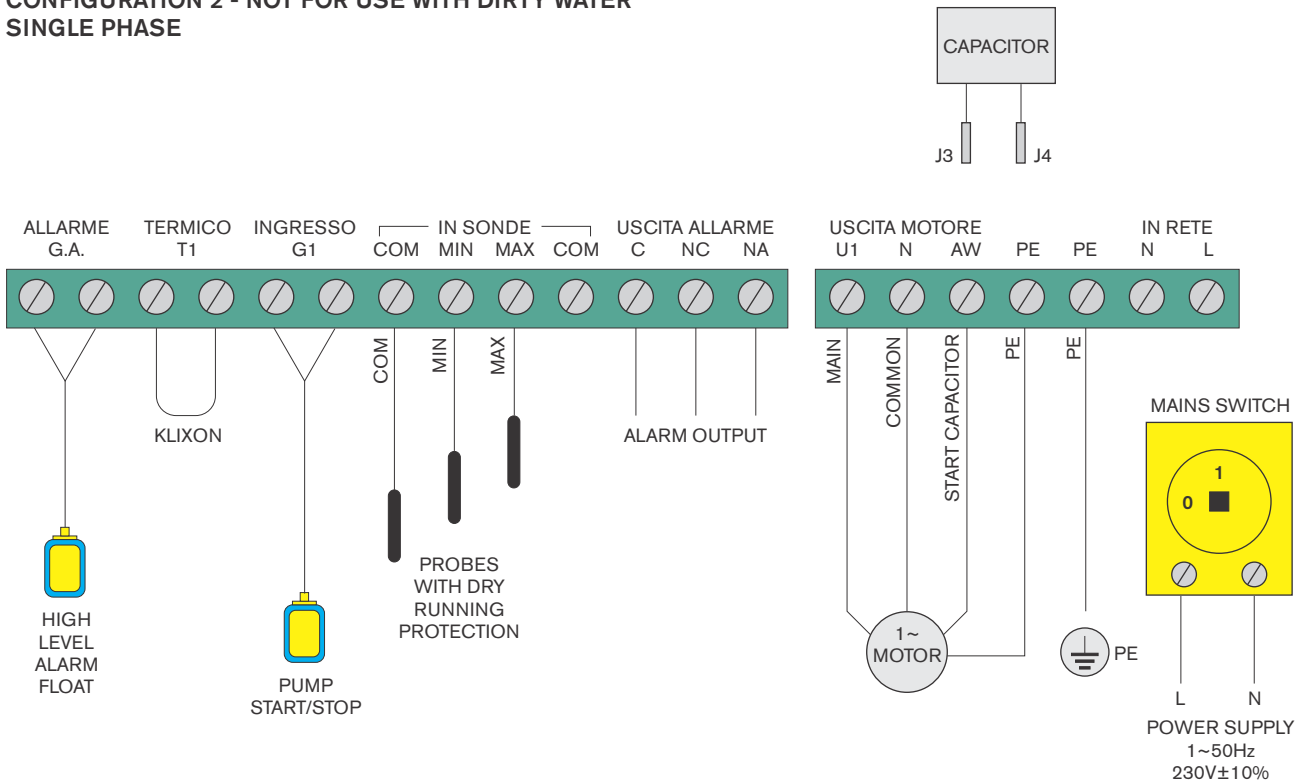
Global Water have not acted as a consultant nor charged design fees on this project, and are in no way responsible for nor guarantee any particular level of performance of the treatment plant or effluent quality unless such guarantee is specially given in writing.

Under no circumstances is Global Water liable for any direct or consequential loss or damage to persons or properties of any nature due to any cause whatsoever.

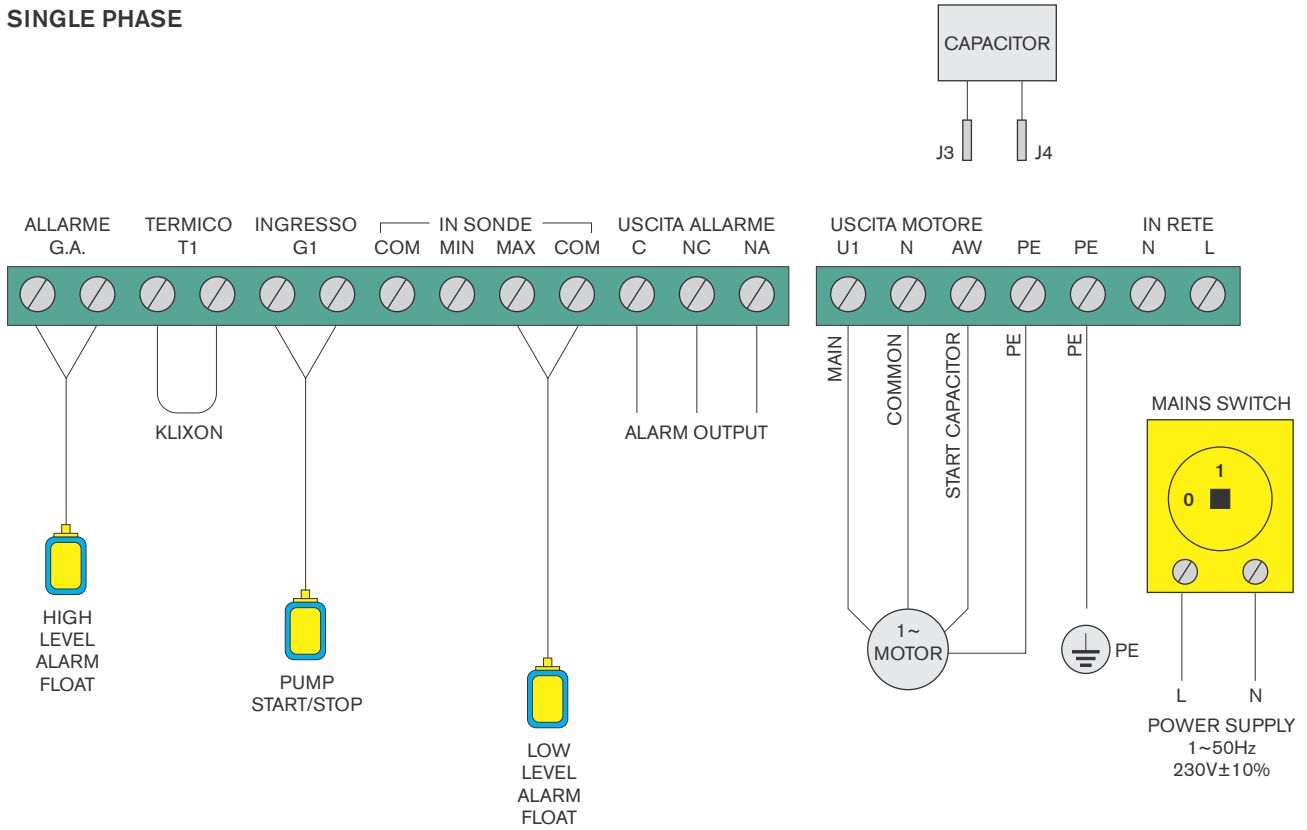
## CONFIGURATION 1 SINGLE PHASE



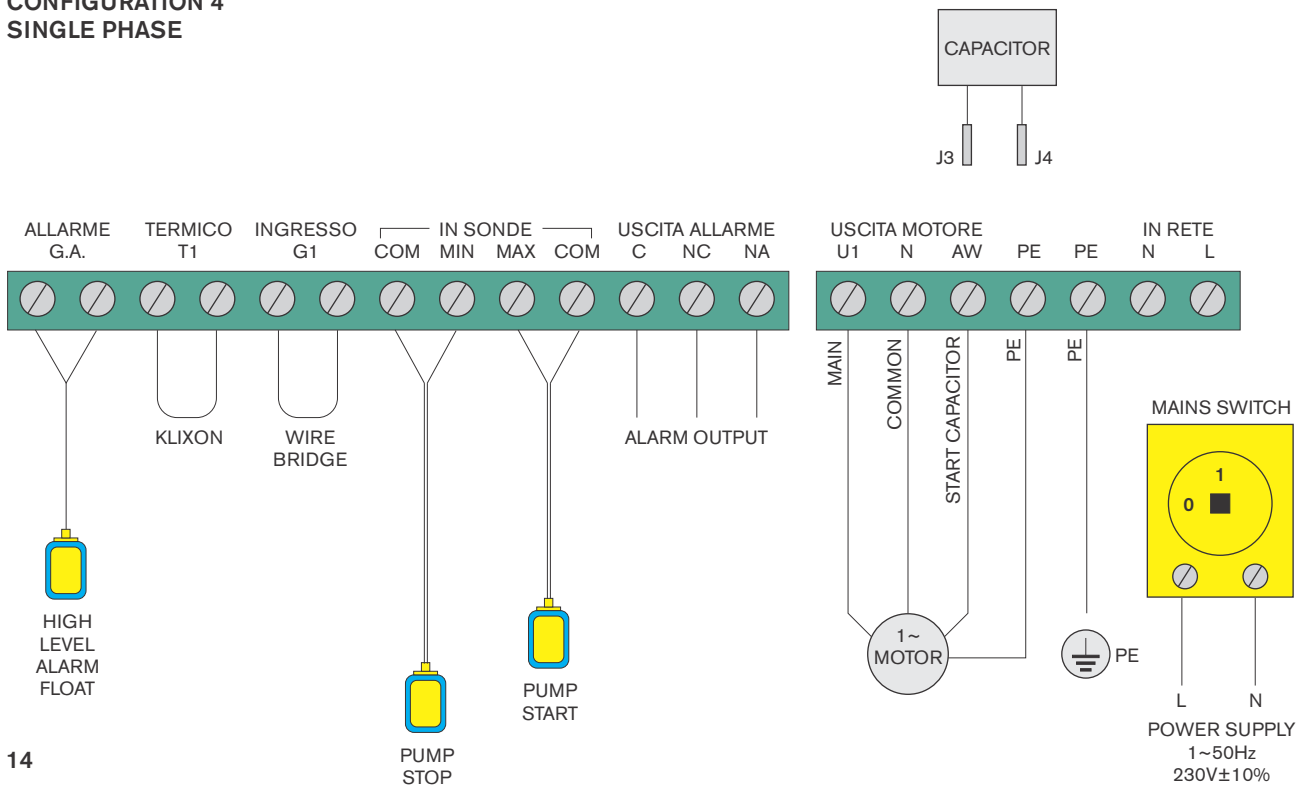
## CONFIGURATION 2 - NOT FOR USE WITH DIRTY WATER SINGLE PHASE



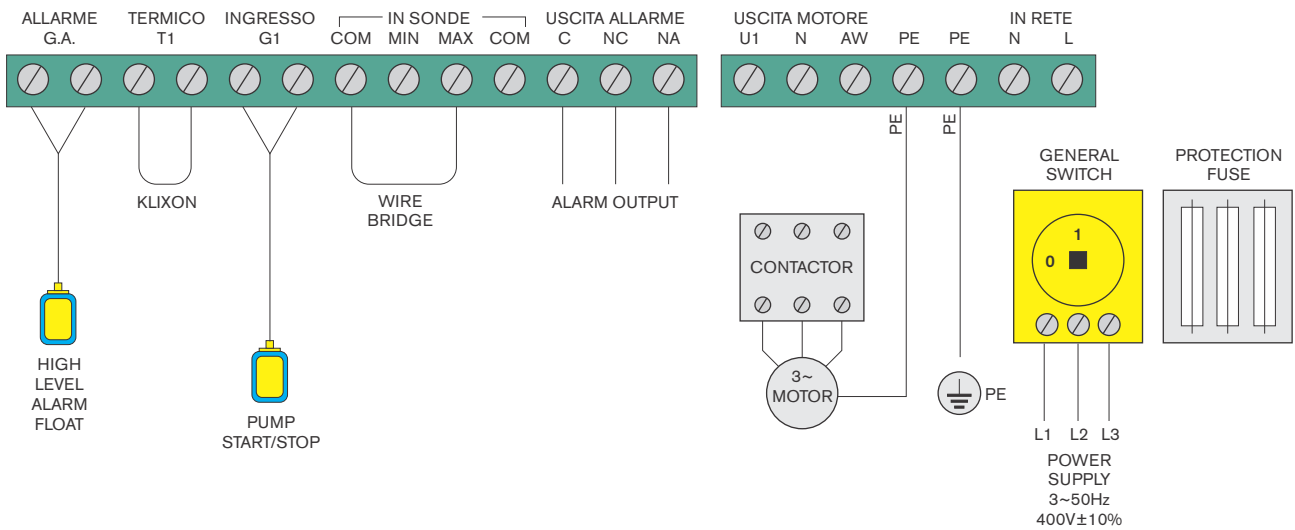
## CONFIGURATION 3 SINGLE PHASE



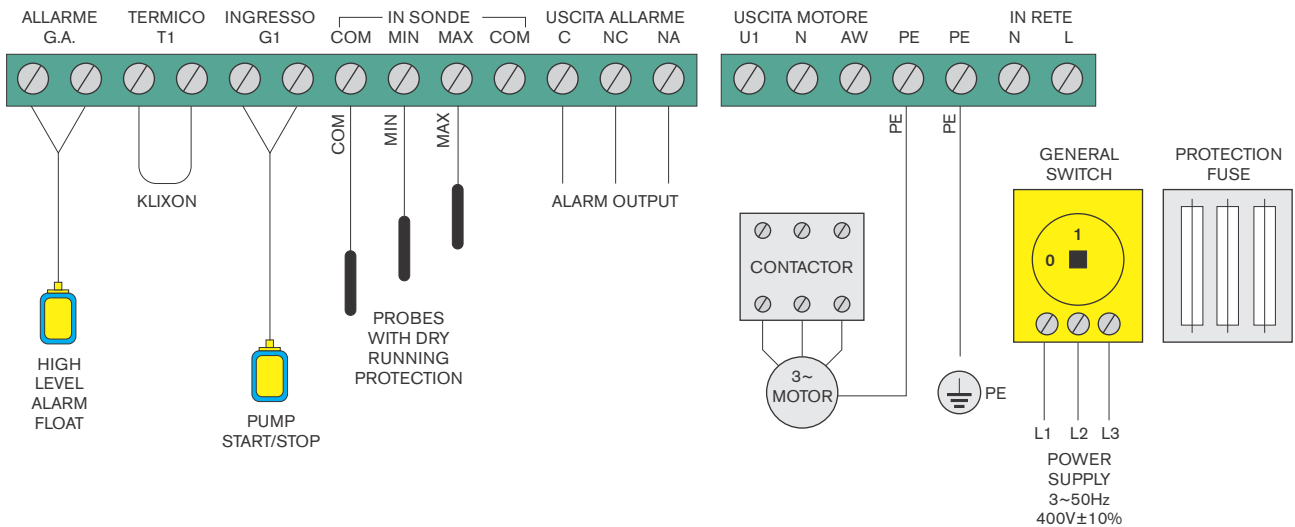
## CONFIGURATION 4 SINGLE PHASE



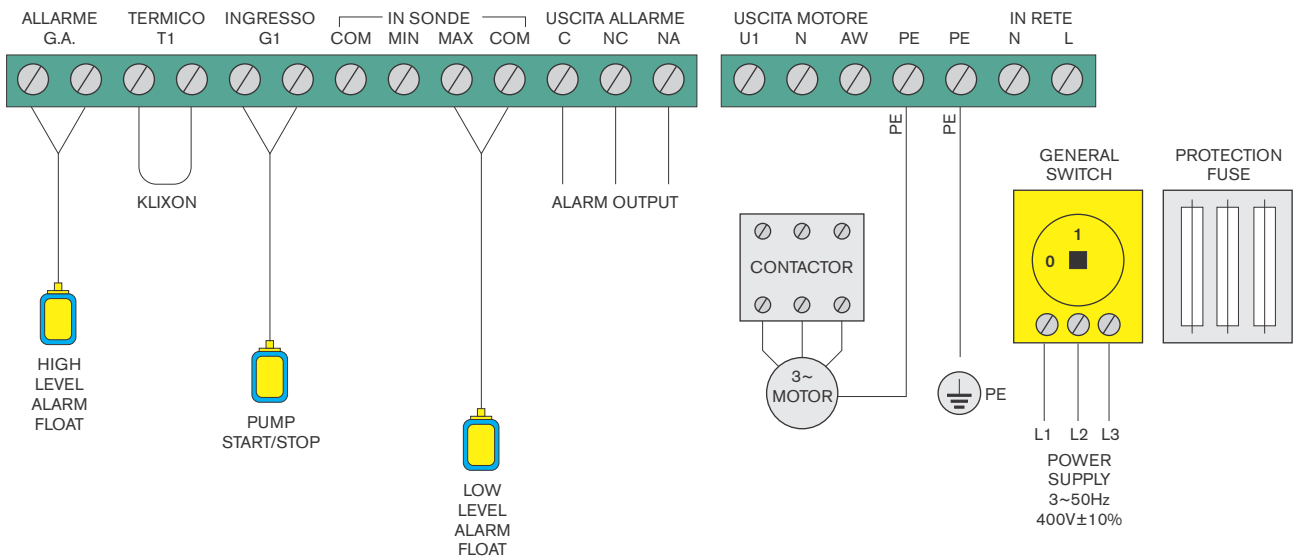
## CONFIGURATION 1 THREE PHASE



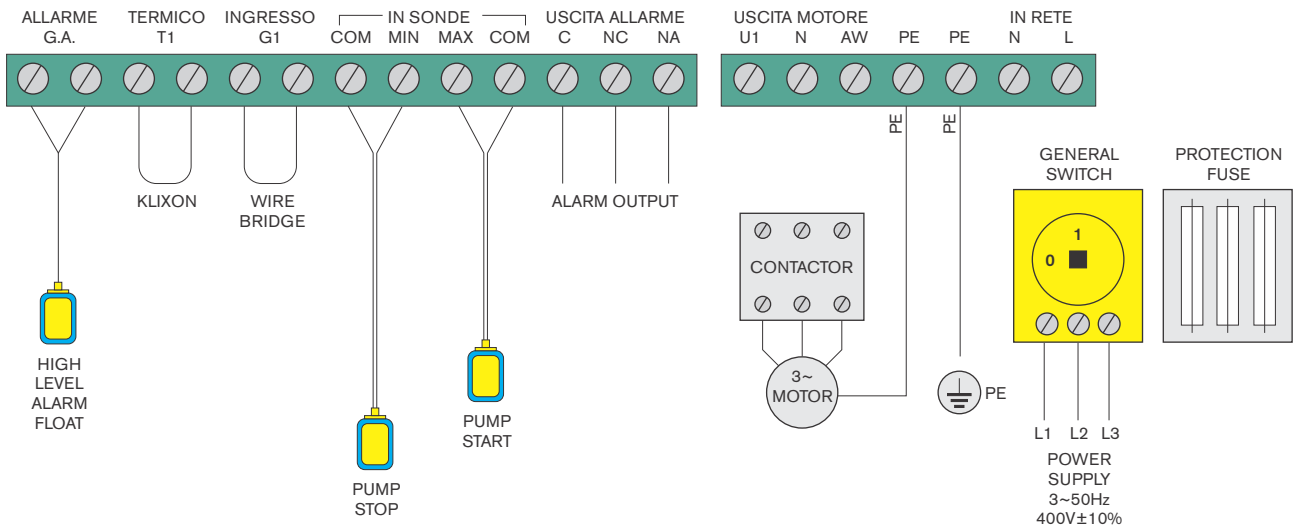
## CONFIGURATION 2 - NOT FOR USE WITH DIRTY WATER THREE PHASE



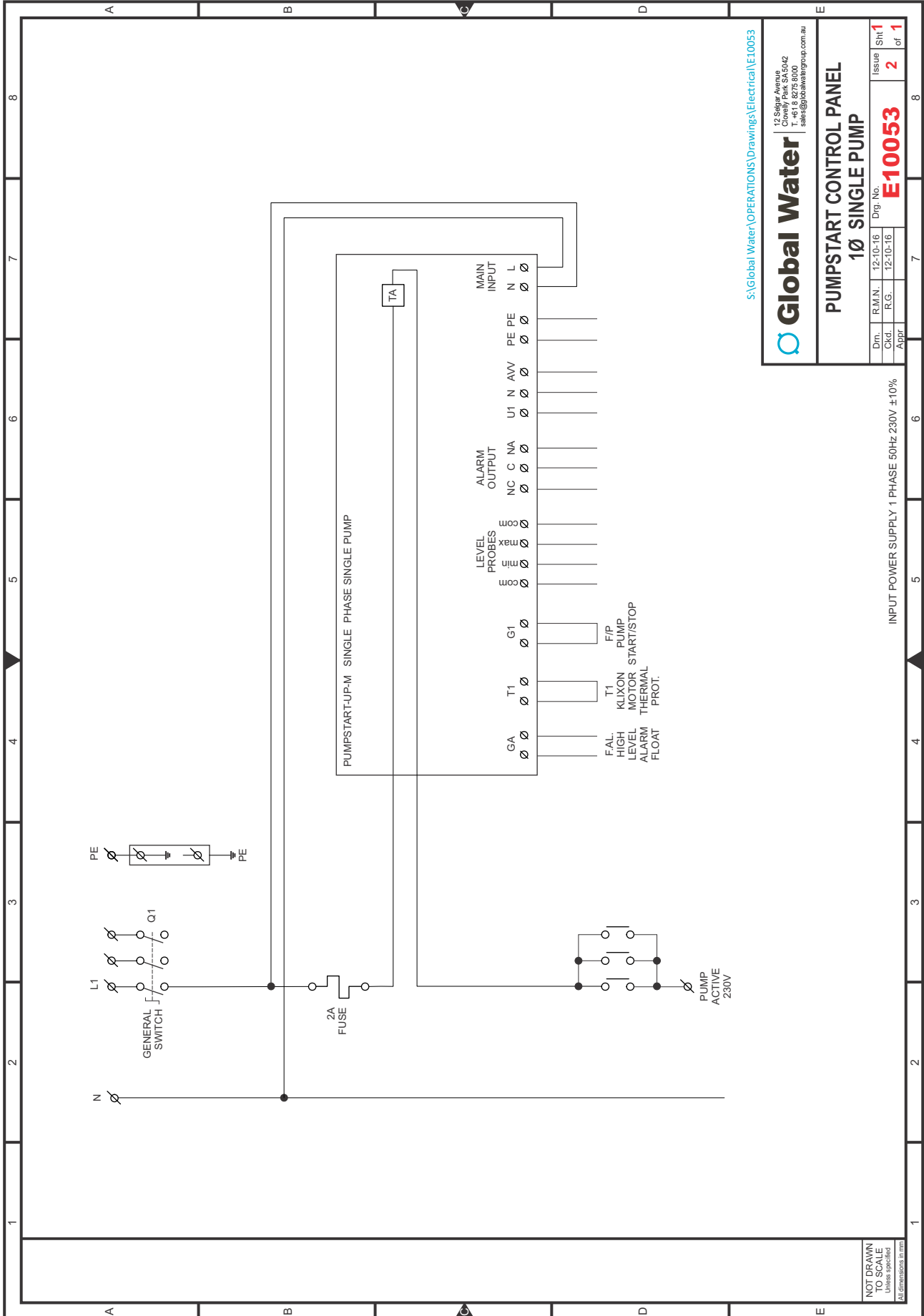
## CONFIGURATION 3 THREE PHASE



## CONFIGURATION 4 THREE PHASE







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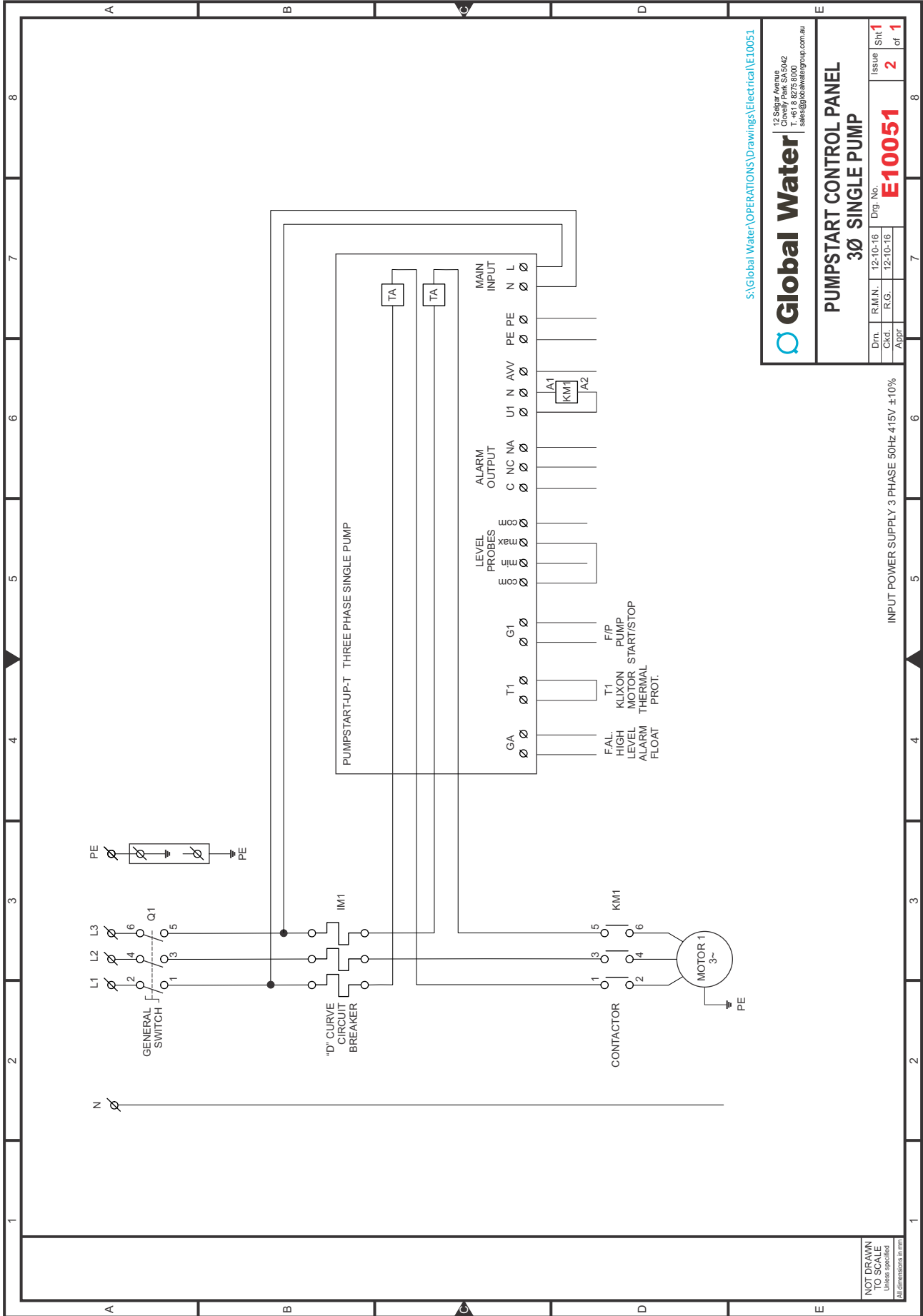
**Global Water**  
12 Seagar Avenue  
Croyley Park SA 5004  
Australia  
sales@globalwatergroup.com.au

### PUMPSTART CONTROL PANEL 1Ø SINGLE PUMP

Dim.	R.M.N.	12-10-16	Drig. No.	Issue	Sh1 1
Ckd.	R.G.	12-10-16		2	of 1
<b>E10053</b>					

INPUT POWER SUPPLY 1 PHASE 50Hz 230V ±10%

NOT DRAWN TO SCALE  
Unless specified  
All dimensions in mm



S:\Global Water\OPERATIONS\Drawings\Electrical\E10051



**Global Water**  
12 Seagar Avenue  
Croyley Park SA 5042  
Australia  
sales@globalwatergroup.com.au

## PUMPSTART CONTROL PANEL 3Ø SINGLE PUMP

Drn.	R.M.N.	12-10-16	Drng. No.	Issue	Sh1 1
Ckd.	R.G.	12-10-16		2	of 1
Appr.				<b>E10051</b>	

NOT DRAWN TO SCALE  
Unless specified  
All dimensions in mm



# PumpStart Single Pump Controller

