Clarke®

PUMP

ELECTRONIC PUMP CONTROLLER

MODEL NO: EPC2200

PART NO: 7230701

OPERATION & MAINTENANCE INSTRUCTIONS

UK CA | CE

ORIGINAL INSTRUCTIONS

GC05/24

INTRODUCTION

Thank you for purchasing this EPC2200 Electronic Pump Controller.

Before attempting to use this product, please read this manual thoroughly and follow the instructions carefully. In doing so you will ensure the safety of yourself and that of others around you, and you can look forward to your purchase giving you long and satisfactory service.

Please keep these instructions in a safe place for future reference.

APPLICATIONS

This controller can be used to convert water pumps into automatic booster sets and provides 2 main functions:

1. It provides automatic operation of your pump.
    - This in-line device maintains water pressure from booster pumps by instantly sensing water usage and automatically starting or stopping the pump.
2. It protects the pump from running dry.
    - The EPC2200 controller has a built in safety circuit which switches the pump off when there is no water flow.
    - The controller performs pump control operations automatically.

Only use the controller in conjunction with clean water which is free of mineral particles in suspension.

DESIGN FEATURES

- Automatic and manual modes.
- In Auto mode, the pump will start without adjusting the starting pressure. The pump will also stop automatically in case of water shortage.
- The pump can start automatically when the power supply returns after power failure.
- Manual mandatory startup.
- Over-pressure protection;- if the system pressure is over 10 bar, the unit automatically stops the pump.
- Water shortage self-start. The time interval of self-start is 1 minute, 30 minutes, 1 hour and then in a 1 hour cycle.
- Built-in pressure sensor and LED display.
- Dry mode protection can re-start the pump if no flow after 48 hours to discourage blockages.

- The digital display can be used to test and display starting pressure.

WORKING MODES

- In Automatic mode: the controller can automatically adjust the starting pressure according to the pressure in the pipeline and can monitor the pipeline pressure at any time. It does not need to be set manually so avoiding a mismatch between the starting pressure and the head of the pump, caused by the mismatch between the faulty set starting pressure and the head of the pump.
- In Manual mode the starting pressure can be set between 0.5 and 6.0 bar.

SPECIFICATIONS

Power supply	230V-50-60Hz
Maximum power	2200 W
Max. Ambient Water Temp.	60°C
Protection Rating	IP65
Maximum Operating Pressure	10 bar
Start-up pressure	0.5 - 6 bar
Cut-off pressure	0.8-9.8 Bar
Water flow rate	120 L/min
Connection sizes	G1" BSP external (male) thread.

SAFETY PRECAUTIONS

1. **DO NOT** attempt to modify or alter the controller in any way.
2. Observe all electrical safety precautions. **DO NOT** allow the controller to be submerged. Ensure it is protected from the elements at all times.
3. Read and follow all precautions specified in your pump manual.
4. The controller should always be installed by a suitably qualified person who is familiar with the appropriate electrical regulations.

CONNECTING THE PUMP TO THE CONTROLLER

WATER CONNECTION

The controller should be connected to a good quality water pump and a check valve should be fitted upstream of the pump. Confirm that the pump is operating before installing the controller.

The controller can be installed anywhere between the pump and the first tap.

No taps should be fitted between the pump and the controller.

Use a flexible hose to connect the controller to the delivery pipe and tap.

The controller can be connected directly adjacent to the pump and between the pump and the first outlet tap.

The controller must be installed in an upright position as shown by the direction arrows on the label.

The vertical distance between the highest taps and the controller outlet being no more than shown in the table below.

Starting Pressure (bar)	Distance of controller and highest tap max distance (m)	Theoretical value of the pump min head (m)	Suggested value of the pump min head (m)
1.2	12	13	17
1.5	15	16	20
2.2	22	23	27

ELECTRICAL CONNECTIONS

The controller is fitted with two cables.

1. One is fitted with a standard 13 amp plug.
    - When connected to the mains supply, this cable carries the supply to both the controller and the pump.
2. The other cable should be fitted to a connecting socket for the pump.
3. If the controller is to be connected to an outdoor electrical supply, make sure that both the plug and the socket are of a BS approved waterproof design and are protected from the elements.

ELECTRICAL PLUGS AND CABLES

⚠	**WARNING: READ THESE ELECTRICAL SAFETY INSTRUCTIONS THOROUGHLY BEFORE CONNECTING THE PRODUCT TO THE MAINS SUPPLY.**

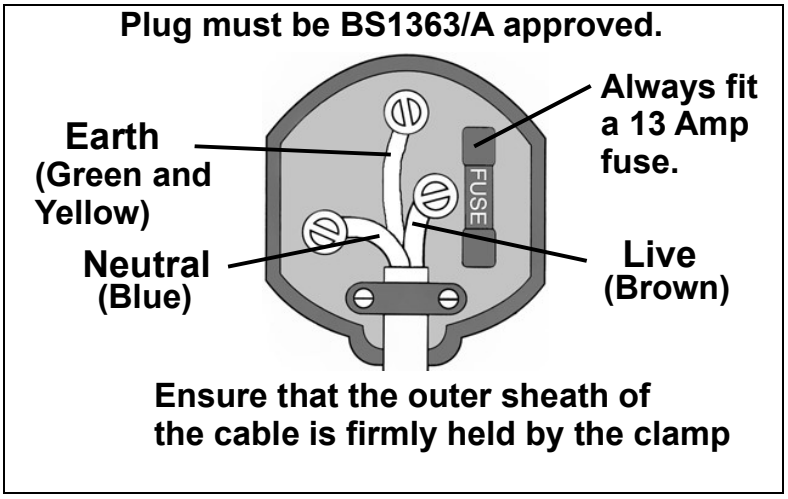
Connect the mains lead to a standard, 230 Volt (50Hz) electrical supply through an approved 13 amp BS 1363 plug or a suitably fused isolator switch.

If the plug has to be changed because it is not suitable for your socket, or because of damage, it must be removed and a replacement fitted, following the wiring instructions shown below. The old plug must be discarded safely, as insertion into a power socket could cause an electrical hazard.

⚠	**WARNING: THE WIRES IN THE POWER CABLE OF THIS PRODUCT ARE COLOURED IN ACCORDANCE WITH THE FOLLOWING CODE:** **BLUE = NEUTRAL BROWN = LIVE YELLOW AND GREEN = EARTH**

If the colours of the wires in the cable do not agree with the markings on the plug.

- The BLUE wire must be connected to the terminal marked N or coloured black.
- The BROWN wire must be connected to the terminal marked L or coloured red.
- The YELLOW AND GREEN wire must be connected to the terminal marked E or ⏚ or coloured green.



We strongly recommend that this product is connected to the mains supply through a Residual Current Device (RCD)

If you are in any doubt regarding electrical installation, you should consult a qualified electrician.

EXTENSION CABLES

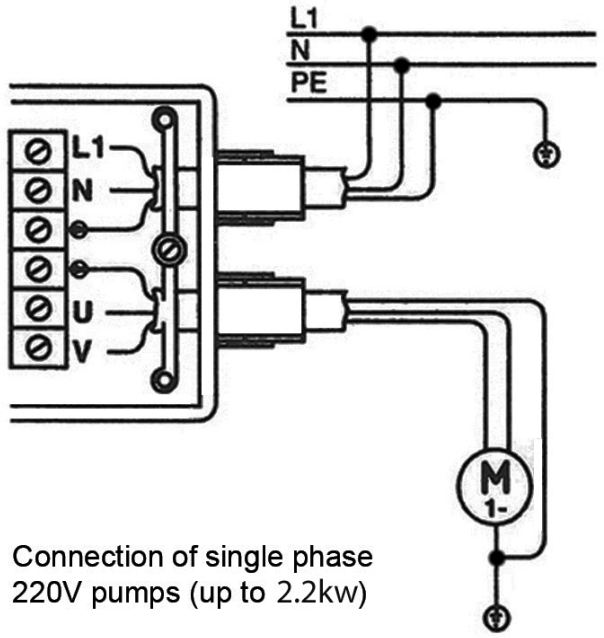
The maximum length of cable should not exceed 25 metres, and the size of the conductors must be AT LEAST the same size as that on the controller.

Ensure that all connections are well clear of the water.

WIRING CONNECTIONS

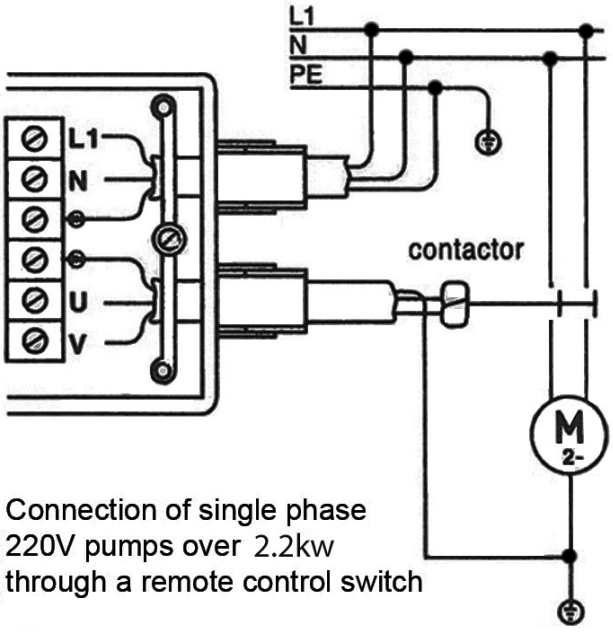
CONNECTING THE CONTROLLER TO DIFFERENT PUMPS

Single Phase - 220-240V @ 50-60 Hz
Pump <2.2 kW



Connection of single phase 220V pumps (up to 2.2kw)

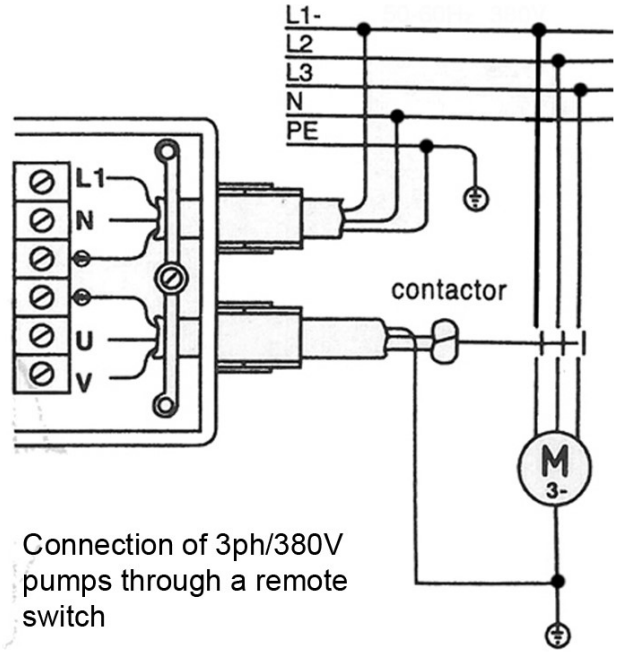
Single Phase - 220-240V @ 50-60 Hz
Pump >2.2 kW



Connection of single phase 220V pumps over 2.2kw through a remote control switch

Minimum contacts capacity of 4 Kw or 5.5HP approx 220V

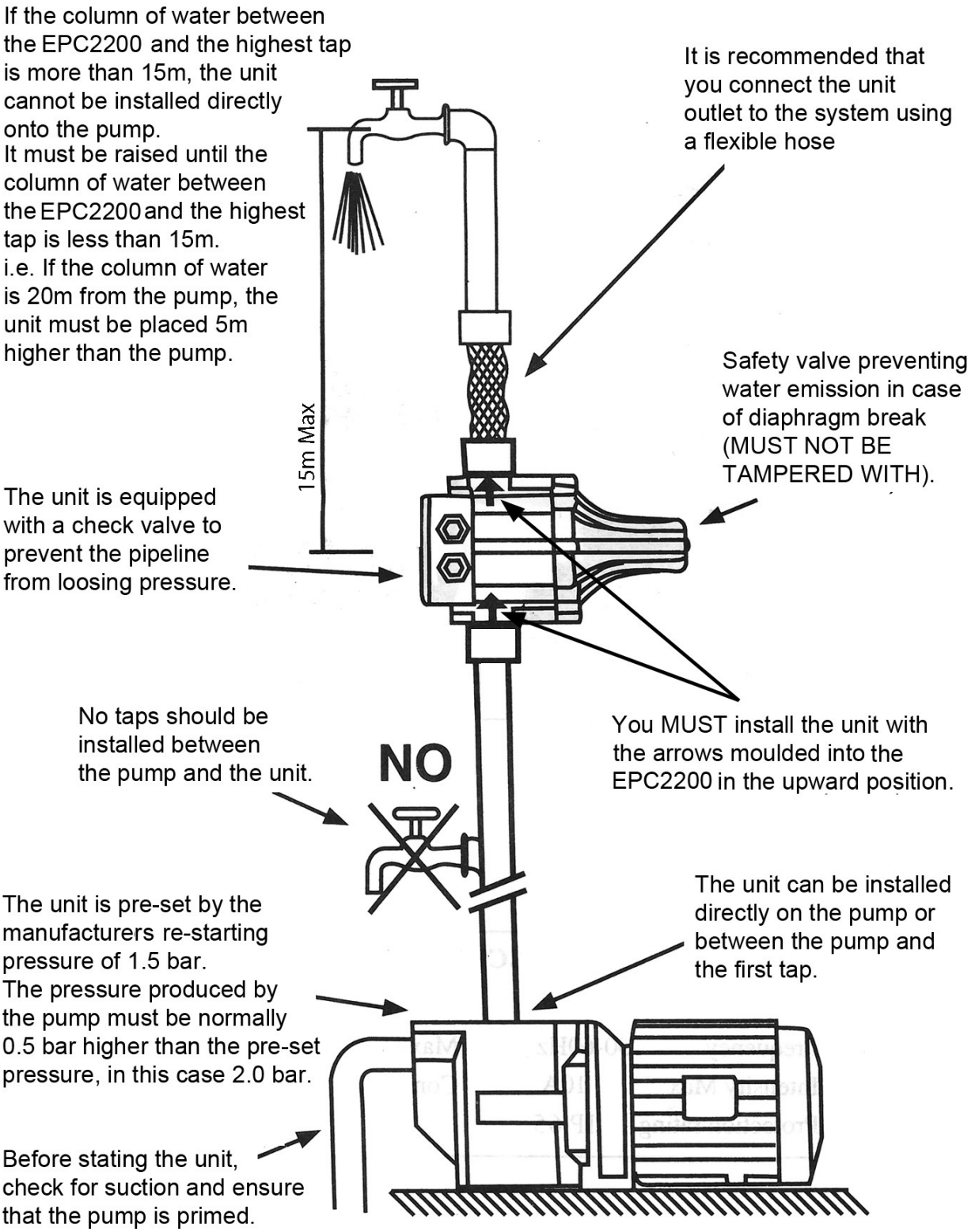
Three Phase - 380V @ 50-60 Hz
(Uses a 230V Control Switch)



Connection of 3ph/380V pumps through a remote switch

Minimum contacts capacity of 4Kw or 5.5HP approx 220V

MECHANICAL INSTALLATION



You should always fit a non-return valve to the suction line. (A foot valve and filter are available from your CLARKE dealer).

CONTROLS AND DISPLAYS

No	Name	**Description**
1	FAILURE	1. Light ON = lack of water 2. Light OFF = water supply normal 3. Twinkling light means lack of water. The pump will stop and re-start.
2	PUMP	1. Light ON = pump working 2. Light OFF = pump will stop
3	AUTO	1. Light ON shows AUTO mode running (no need to set starting pressure 2. Light OFF = Normal Mode (starting pressure set by the user
4	POWER	Light ON = System power supply normal
5	Display	1. "000" means real time pressure 2. "L00" means the starting pressure value 3. "P" = Over-pressure protection
6	"+" button	Press button to Increase the pressure setting
7	SET	Change between Automatic mode and Normal mode
8	"RUN"	Press to manually re-start the pump
9	"-" button	Press button to decrease the pressure setting

SET-UP AND OPERATION

SET THE WORKING MODE

In automatic mode the AUTO light will be on. Press the SET button for 4 seconds and the AUTO light will go off and the unit will be in normal mode.

Press the SET button for 4 seconds and the unit will return to AUTO mode.

SET THE STARTING PRESSURE

In AUTO mode, the controller will set a starting pressure according to the pipeline pressure.

In RUN mode press the "+" or "-" button to enter the starting pressure setting. The display will show L00. Press the SET button or wait 8 seconds to save and exit the setting for normal operation.

- The controller has a memory function to store the chosen setting in case of power outage.

To display the starting pressure, press RUN and SET at the same time.

If the display shows "P- -"& blinks, it means the pump will restart in 30 minutes.

If the failure light blinks it means the pump will restart after 1 minute, 30 minutes or 1 hour.

If the pump stops, press the RUN button to set it working again.

STARTING THE SYSTEM

CAUTION: ENSURE THE PUMP IS FULLY PRIMED BEFORE SWITCHING ON. SEE YOUR PUMP INSTRUCTION MANUAL FOR DETAILS.

1. Close all taps/valve on the discharge side of the pump.
2. After making sure that all precautions have been observed, ensure there is power to the pump.
    - The "Power" LED will light up and the "Pump" LED will indicate that the pump has been started.
    - The pump will continue to operate for a few seconds enabling the system to fill and to reach the required pressure.

If this time is insufficient, the "FAILURE" LED lights up. If this happens, open a tap and keep the "RUN" button pressed until the LED goes off, then release the button and close the tap. The controller will stop the pump at its maximum pressure.

RUNNING THE UNIT

- If you open the outlet valve the controller will detect a drop in pressure and start the pump.

When operational breakdowns occur, such as water loss, obstruction of the suction pipe, etc, the controller recognizes the problem and the red "Failure" LED lights up at the same time as the power to the pump is cut to prevent damage caused by dry running. If this should occur:

1. Switch off the controller at the mains outlet.
2. Rectify the problem.
3. Switch on the controller at the mains and press the AUTO button.

The most common problems associated with water pump operation are leaks on the SUCTION side of the pump. Even a pin hole in the inlet hose is sufficient to seriously reduce suction.

Using the automatic mode can avoid the issue of the pump not starting if the artificial starting pressure does not match the pump head in normal mode.

In certain conditions the pump may not start in Automatic Mode, in which case run the unit manually before increasing the starting pressure to a suitable value.

MAINTENANCE AND REPAIRS

Although a component diagram is included, spare parts may be obtained from your CLARKE dealer and the work may be better left to their technicians.

TROUBLESHOOTING

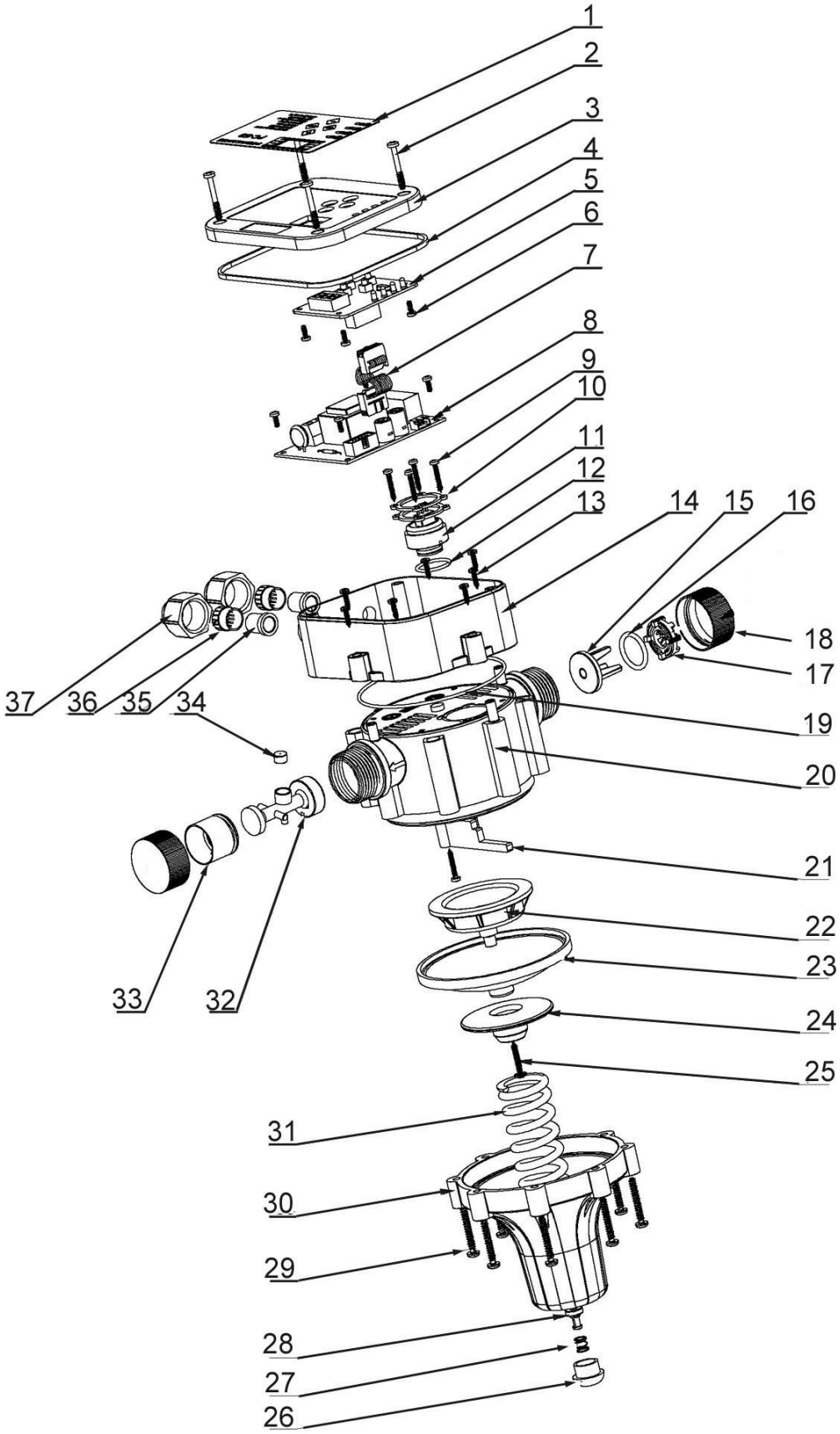
Problem	Causes related to the controller	Other possible causes
The pump does not start	Internal PCB is broken	Voltage is less than 200 v Pump jammed Cables incorrectly connected
The pump does not stop	Internal PCB is broken. Check valve is stuck Water contains materials in suspension.	Pipeline leaks
Intermittent pump running	The internal PCB is broken. The pump does not provide sufficient pressure	Presence of leaks in pipeline
The pump is jammed	Internal PCB is broken. The pump provides a pressure which is lower than the restarting pressure	Water failure Suction problems Pump leaking internally In normal mode the pump head is less than starting pressure.
Failure light flickering	The internal PCB is broken Air present in the pipeline	Fault with the pump such as leaks or loss of water flow.
Code P displayed	Internal PCB is broken Pressure sensor is broken	Actual pipeline pressure is greater than 9.9bar for more than 5 seconds.
For other possible problems consult the pump instruction manual.		

ENVIRONMENTAL RECYCLING POLICY

Through purchase of this product, the customer is taking on the obligation to deal with the WEEE in accordance with the WEEE regulations in relation to the treatment, recycling & recovery and environmentally sound disposal of the WEEE.

In effect, this means that this product must not be disposed of with general household waste. It must be disposed of according to the laws governing Waste Electrical and Electronic Equipment (WEEE) at a recognised disposal facility.

COMPONENT PARTS



COMPONENT PARTS

No	Description
1	Nameplate
2	Screw
3	Panel
4	Panel seal
5	Display board
6	Screw
7	Display board connection
8	PCB with components
9	Screw
10	Pressure sensor clamp
11	Pressure sensor
12	Sensor O-ring
13	Screw
14	Upper housing
15	Check valve
16	Check valve O-ring
17	Water inlet filter
18	Screw cap
19	Housing O-ring

No	Description
20	Main housing
21	Check valve baffle
22	Inner clamp
23	Diaphragm
24	Outer clamp
25	Screw
26	Top cap
27	Cap spring
28	Top cap core
29	Screw
30	Head moulding
31	Compression spring
32	Copper float
33	Copper sleeve
34	Magnet
35	Sealing ring
36	Cable gland
37	Hex nut

GUARANTEE

This product is guaranteed against faulty manufacture for a period of 12 months from the date of purchase. Please keep your receipt which will be required as proof of purchase.

This guarantee is invalid if the product is found to have been abused or tampered with in any way, or not used for the purpose for which it was intended.

Faulty goods should be returned to their place of purchase, no product can be returned to us without prior permission.

This guarantee does not effect your statutory rights.

UK CA

Clarke® INTERNATIONAL

Hemnall Street, Epping, Essex, CM16 4LG

DECLARATION OF CONFORMITY

This is an important document and should be retained.

We hereby declare that this product(s) complies with the following legislation:

The Electromagnetic Compatibility Regulations 2016

The Electrical Equipment (Safety) Regulations 2016

The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

The following standards have been applied to the product(s):

EN 60730-2-6:2016+A1:2020, EN 60730-1:2016+A1:2019, EN 61000-3-2:2014, EN 61000-3-3:2013, EN 55014-1:2017, EN 55014-2:2015

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned legislation has been compiled and is available for inspection by the relevant enforcement authorities.

The UKCA mark was first applied in: 2024

Product Description:	Automatic Pump Controller
Model Number(s):	EPC2200
Serial/Batch Number:	Refer to product/packaging label
Date of Issue:	15/04/2024

Signed:

J.A Clarke

Director

CE

Clarke® INTERNATIONAL

Fitzwilliam Hall, Fitzwilliam Place, Dublin 2

DECLARATION OF CONFORMITY

This is an important document and should be retained.

We hereby declare that this product(s) complies with the following legislation:

2014/30/EU	*Electromagnetic Compatibility Directive*
2014/35/EU	*Low Voltage Directive*
2011/65/EU	*Restriction of Hazardous Substances (RoHS) Directive*

The following standards have been applied to the product(s):

EN 60730-2-6:2016+A1:2020, EN 60730-1:2016+A1:2019, EN 61000-3-2:2014, EN 61000-3-3:2013, EN 55014-1:2017, EN 55014-2:2015

The technical documentation required to demonstrate that the product(s) meet(s) the requirement(s) of the aforementioned legislation has been compiled and is available for inspection by the relevant enforcement authorities.

The CE mark was first applied in: 2024

Product Description:	Automatic Pump Controller
Model Number(s):	EPC2200
Serial/Batch Number:	Refer to product/packaging label
Date of Issue:	15/04/2024

Signed:

J.A Clarke

Director

ASSOCIATED CLARKE PRODUCTS

Suction/Delivery Hoses	Hose Adaptors
	
• Reinforced 1" diameter hose for use with water pumps. Reinforced hose can be used on both the suction and delivery sides of any surface mounted water pump or the delivery side of a submersible pump.	• 25mm (1") diameter 90° threaded female hose adaptor
Pipeline Filters	**Pool and Booster Pumps**
	
• An optional pump filter and car-tridge for use with the various Clarke water pumps including the SPP swim-ming pool pump range & CBM booster pumps.	• The 1HP SPP10A 750W swimming pool pump is a self priming pump designed to re-circulate water to and from the pool via a filtration system (sold separately) allowing for the quick and easy draining and cleaning of pools of varying sizes.

A SELECTION FROM THE VAST RANGE OF

Clarke®

QUALITY PRODUCTS

AIR COMPRESSORS
From DIY to industrial, Plus air tools, spray guns and accessories.

GENERATORS
Prime duty or emergency standby for business, home and leisure.

POWER WASHERS
Hot and cold, electric and engine driven - we have what you need

WELDERS
Mig, Arc, Tig and Spot.
From DIY to auto/industrial.

METALWORKING
Drills, grinders and saws for DIY and professional use.

WOODWORKING
Saws, sanders, lathes, mortisers and dust extraction.

HYDRAULICS
Cranes, body repair kits, transmission jacks for all types of workshop use.

WATER PUMPS
Submersible, electric and engine driven for DIY, agriculture and industry.

POWER TOOLS
Angle grinders, cordless drill sets, saws and sanders.

STARTERS/CHARGERS
All sizes for car and commercial use.

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