

STUART

Installation, Operation & Maintenance Instructions

Please leave this instruction booklet with the end user as it contains important warranty, maintenance and safety information



Read this manual carefully before commencing installation.

This manual covers the following products:

Pulse Trade 25-60/130

Pt. No. 47505



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WARNINGS:



- **This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved.**
- **Children shall not play with the appliance.**
- **Cleaning and user maintenance shall not be made by children without supervision.**
- **The motor casing can become very hot under normal operating conditions. Care must be taken to ensure it cannot be touched during operation.**
The electrical installation must be carried out in accordance with the current national electrical regulations.



- **The electrical installation must be installed by a qualified person.**
- **Do not run the pump dry.**
- **System pressure must not exceed 10 bar.**
- **Before starting work on the electrical supply ensure power supply is isolated.**
- **DO NOT allow the supply cord to contact hot surfaces, including the motor shell, pump body or pipework. The cord should be safely routed and secured by cable clips.**
- **This appliance must be earthed via the supply cord, which must be correctly connected to the earth point located in the terminal box.**

Please read installation details carefully as they are intended to ensure this product provides long, trouble free service. Failure to install the unit in accordance with the installation instructions will lead to invalidation of the warranty.

1 Safety Instructions

1.1 General

These installation and operating instructions are a part of the product and contain basic information that must be observed during installation, operation and maintenance. For this reason, the installer and specialist personnel or operators must read these instructions prior to set-up.

Please observe both the general safety instructions listed under section 2 and the special safety instructions detailed in the other sections.

A copy of the EC Declaration of Conformity is provided with these instructions. This declaration shall be deemed void in the event of a modification that has not been agreed with us.

1.2 Identification of symbols in the operating instructions



General hazard symbol Warning! Danger of personal injury! Observe the relevant accident prevention regulations.



Warning! Danger from electrical voltage! Prevent hazards arising from electrical energy. Observe the instructions in local or general regulations (e.g. IEC, VDE, etc.), and those of the local energy supplier.

Bold text indicates useful information for handling the product. It indicates potential difficulties and aims to ensure safe operation.

Signs attached directly on the product, such as:

- direction of rotation arrow
- type plate
- identification of connections must be strictly observed and kept in an easily legible state

1.3 Personal qualification

The personal used for mounting, operation and maintenance must have relevant qualifications. The owner/operator must guarantee areas of responsibility and monitoring of personnel. If personnel do not have the necessary knowledge, they must be trained or instructed accordingly. This device can be used by children at or above the age of 8 years, as well as by persons with reduced physical, sensory or mental capabilities, or who lack experience and knowledge, if they are supervised or have been instructed concerning the safe use of the device and if they



understand the hazards arising from its use. Children may not play with the device. Cleaning and maintenance operations may not be conducted by children without supervision.

1.4 Danger of not observing safety instructions

Not observing the safety information can endanger persons, the environment and the system. Not observing the safety instructions shall result in the loss of all claims to warranty.

Potential dangers include:

- Hazards to persons through electrical and mechanical effects.
- Failure of important system functions.
- Hazard to the environment from escaping fluids resulting from a leak.
- Failure of prescribed repair and maintenance work.

1.5 Safety-conscious work

Observe the safety instructions detailed in this manual, along with the current national accident prevention regulations. Should the system operator also have their own internal regulations, these must also be observed.

1.6 Safety instructions for the operator

- Any existing touch guard protecting moving parts may be neither removed nor shut down while the system is in operation.
- In the event of a fluid leak, any fluids must be collected or diverted in a way that prevents hazards to persons and the environment from arising.
- Prevent hazards arising from electrical energy.
- Observe the instructions in local or general regulations (e.g. IEC, VDE, etc.), and those of the local energy supplier. In the event of hazards arising from the system due to contact with hot or cold parts, these parts must be fitted with a touch guard.
- Keep flammable substances away from the product.



1.7 Safety instructions for installation and maintenance work

The system operator is responsible for ensuring that qualified personnel conduct all installation and maintenance work. These persons must also have familiarised themselves in advance with the product using the operating instructions. Conducting work on the pump is only permitted when the system has been isolated, and has been allowed to cool.

Ensure that the device is securely disconnected from the power supply.

Disconnect the device plug to achieve this. Prescribed instructions for shutting down the device can be found in the operating instructions. All protective mechanisms, such as a touch guard, must be correctly reattached after work.

1.8 Unauthorised conversion and production of spare parts

Modification or conversion of the product is only permitted after prior consultation with the manufacturer. Only use original spare parts for repairs. Only use accessories that have been approved by the manufacturer. The manufacturer shall bear no liability for any consequences resulting from the use of other parts.

1.9 Unpermitted operation

If the pump is disconnected from the power supply, wait at least 1 minute before reactivating. Otherwise, the pump's inrush current limit has no effect, which can lead to functional errors or damage to any connected heating controller. The pump's operational safety can only be ensured if it is used as intended. Please observe section 3 of these operating instructions here. Ensure compliance with the limit values detailed in the technical data.



2 Transport and storage

After receiving the product, inspect it immediately for damage caused in transport. Should you detect any transport damage, assert a claim with the haulier.

Incorrect transport and storage can lead to personal injury or damage to the product.

- Protect the product against frost, moisture and damage during transport and storage.
- Only carry the pump by the pump housing, and never by the connection cable or terminal box.
- If the packaging weakens due to moisture, this can lead to the pump falling out and causing severe injury.



3 Intended Use

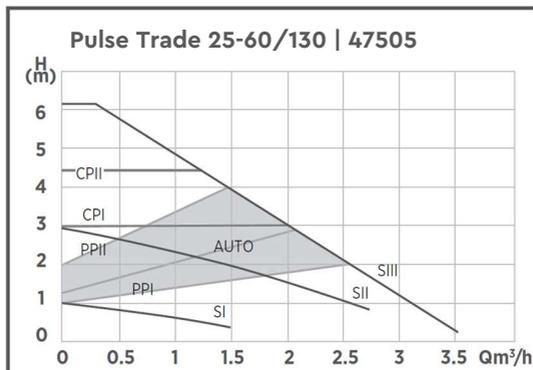
These high efficiency pumps are designed to circulate hot water in central heating systems and are also suitable for pumping low density liquids in industrial and commercial applications. They are



also suitable for solar installations.

4 Product information

4.1 Technical data Pulse Trade 25-60/130



Maximum elevation height	6.0 m
Maximum flow rate	3600 l/h
Power consumption P1 (W)	4.5 - 38
Supply voltage	1 x 230V 50Hz
Sound pressure level	<43 dB(A)
EEL	0.20
Protection type	IP 42
Temperature class	TF 110
Ambient temperature	0 °C to 40 °C
Medium temperature	+5 to110 °C
System pressure	Max. 10 bar (1MPa)
Permitted media	Heating water acc. to VDI 2035
Connection	G1 ½"

Supply pressure

Medium temperature	Minimum supply pressure
< 75 °C	0.05 bar 0.005 MPa 0.5 m
75 °C - 90 °C	0.3 bar 0.03 MPa 3.0 m
90 °C - 110 °C	1.1 bar 0.11 MPa 11.0 m

Acceptable range of application

Temperature range at maximum ambient temperature	Permissible medium temperature
25 °C	5 °C to 110 °C
40 °C	5 °C to 95 °C

Attention!

The use of unsuitable media can destroy the pump and injure you. It is necessary to observe the manufacturer's information and safety data sheets!

4.2 Delivery range

- Original assembly and operating manuals
- Pump
- 2 flat gaskets
- Pump plug
- Insulation

5 Pump description

In an average household, 10 to 20% of electricity consumption is used by conventional standard pumps. We have developed a circulation pump with an energy efficiency index ≤ 0.20 . By using Pulse Trade 25-60/130, energy consumption can be reduced by up to approx. 80% compared to a conventional circulation pump. The hydraulic capacity can be kept almost the same as with the standard pumps. The pump capacity adapts to the actual system demand as it works according to the proportional pressure method.

6 Pump settings and capacity

6.1 Buttons

All pump functions can be controlled with just two buttons. The button  switches the night reduction function on and off. The button  controls the operating modes. The selected operating mode is shown in the clear field of the LED indicator.

6.1.1 Service mode, setting the capacity range

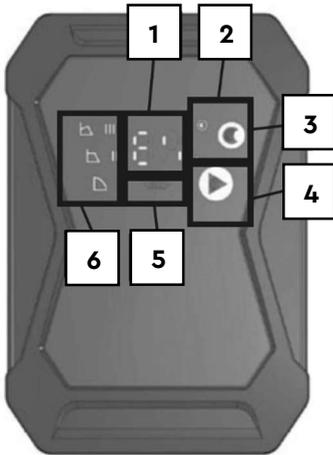
The capacity range can be changed to 4m or 6m in service mode.



- The pump must be disconnected from the 230V mains voltage for at least 15 seconds.
- Connect the pump to the 230V mains voltage.
- Press the  and  buttons simultaneously within 3 seconds.
- Then release both buttons.
- Select the capacity range with the button .
- -4 = 4m
- -6 = 6m
- The pump must be disconnected from the 230V mains voltage for at least 15 seconds.
- Connect the pump to the 230V mains voltage

The setting process is now complete. The pump is now running in the selected capacity range. If necessary, the pump setting can be readjusted at any time.

6.2 Control panel and LED display



1. Display of energy consumption in watts.
2. Automatic night reduction display.
3. Button for activating the automatic night reduction.
4. Operating mode selection button.
5. Display for activated AUTO Smartadapt mode.
6. Display of the nine operating levels (characteristics) of the pump.

6.3 Selection of the operating mode and degree of work

6.3.1 Constant speed adjustment I, II, III

In this operating mode, the pump runs at a constant rotational speed over the entire characteristic curve.

6.3.2 Constant pressure adjustment CP 1, CP 2

In this type of adjustment, the pressure generated by the pump is kept at a constant level. This type of adjustment is especially suitable for use in underfloor heating systems.

6.3.3 Proportional pressure adjustment PP1, PP2

The pump is controlled by the proportional pressure method. In this case, the pressure generated by the pump is adapted to the changing flow rate. This operating mode is especially useful when the pump is to be used as a circulation pump for heating.

6.3.4 Smartadapt

The Smartadapt AUTO function is designed for two-circuit heating systems and underfloor heating systems. The pump capacity is automatically adjusted to the actual heat demand of the installation. The pump power is adjusted gradually and may take more than a week. If the power supply to the pump is

interrupted, the pump remembers the last setting and resumes adjusting as soon as power is restored. Upon delivery, the pump is set to the AUTO Smartadapt operating level. Multiple brief presses of the select button will continuously toggle between the constant speed, constant pressure, proportional pressure and AUTO Smartadapt modes. The selected operating mode is indicated by the appropriate LED with characteristic symbols.

Number of button presses	Display	Description	Symbol Display
0	AUTO (selected on supply)	AUTO Smartadapt	
1	PP1	Min. proportional pressure adjustment	
2	PP2	Average proportional pressure adjustment	
3	CP1	Min. constant pressure adjustment	
4	CP2	Average constant pressure adjustment	
5	I	Constant speed adjustment I	
6	II	Constant speed adjustment II	
7	III	Constant speed adjustment III	
8	AUTO	AUTO Smartadapt	

7 Automatic night reduction display

Display of  means that automatic night reduction is activated.

Button for activating automatic night reduction

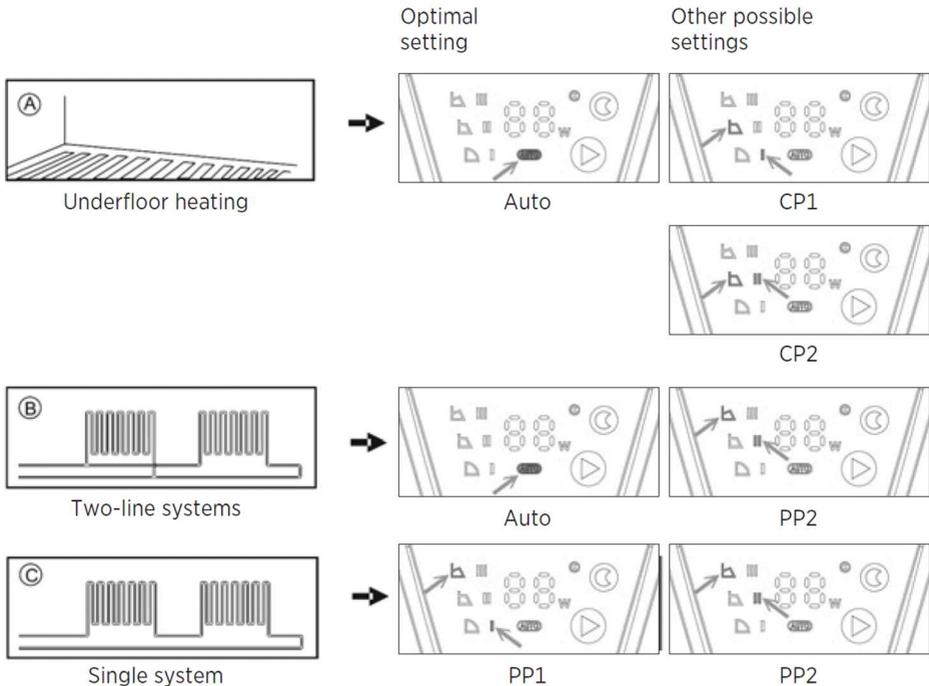
- By pressing the button  in section 3, automatic night reduction is switched on or off.
- When the automatic night reduction is activated, the symbol  lights up in the display field 3.

The "Automatic Night Reduction" function is not available in the constant speed levels.

8 Selection of the degree of work

- Pressing the button  switches between the operating levels.

8.1 Recommendations for selecting a degree of work



Factory configuration = AUTO Smartadapt

8.2 Automatic night reduction of power

Conditions for automatic night reduction:

Pumps installed in gas boilers with low water capacity must never be set to automatic night reduction.

If the heating system does not supply enough heat to the radiators, check whether the automatic night reduction function is active. If necessary, deactivate the automatic night reduction function.



To ensure that night reduction functions properly, the following requirements must be met:

1. The pump must be installed on the supply
2. The heating system must be equipped with automatic temperature adjustment on the supply.

How automatic night reduction works

Press the button  to activate the night reduction function. If the adjacent highlighted field is lit, the night reduction is activated and the pump automatically switches between normal operation and night reduction. Switching depends on the flow temperature.

The pump automatically switches to night temperature reduction if the flow temperature drops by more than 10°-15°C in 1 hour.

Switching to normal operating mode takes place immediately as soon as the flow temperature rises again by 3°C.

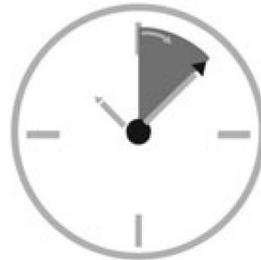
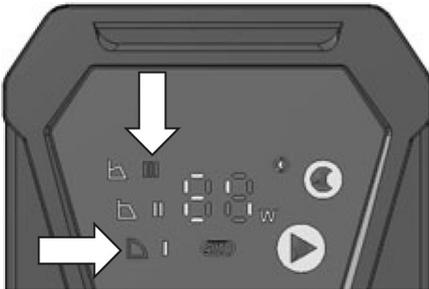
9 Filling and venting the installation

Fill and vent the installation properly. To vent the pump, the electronics should be set to level III and operated in this position for at least 20 minutes. Caution After this procedure, you can set the pump to the desired control mode.

Incomplete venting will cause noise in the pump and system.

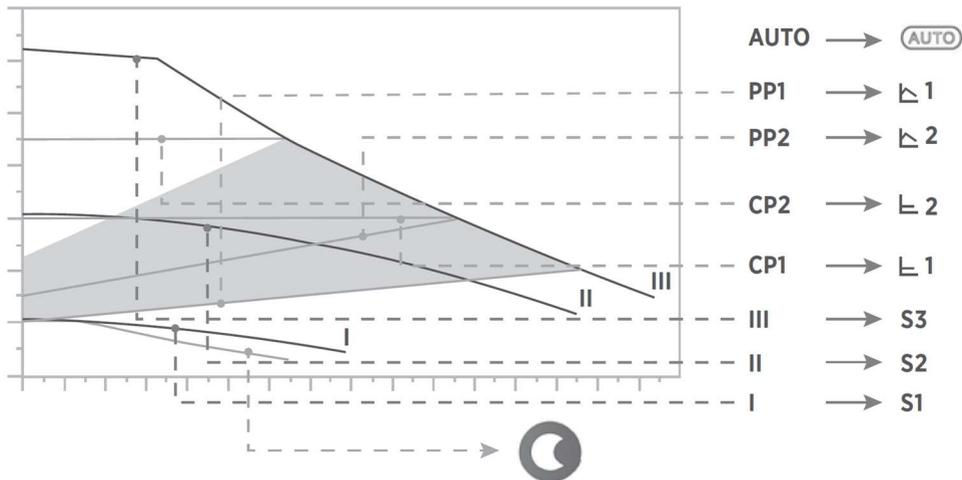
Warning! Danger of burns!

Depending on the operating status of the installation, the entire pump can become very hot.

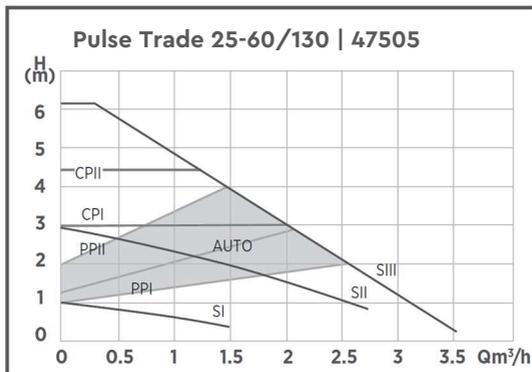


10 Relationship between pump setting and capacity

The characteristic curves show the relationship between pump settings and pump capacity.

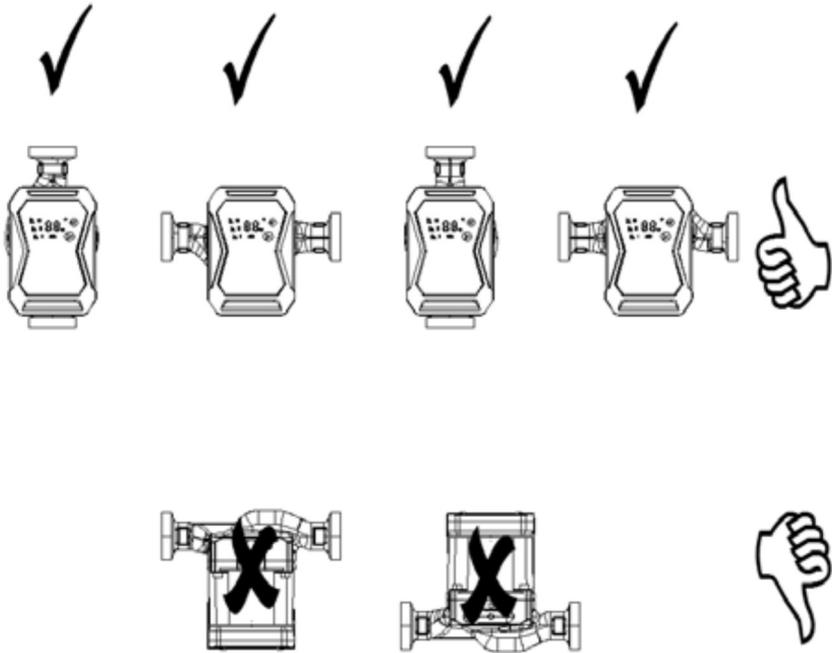


11 Capacity characteristics



12 Installation

Correct installation position of the pump.

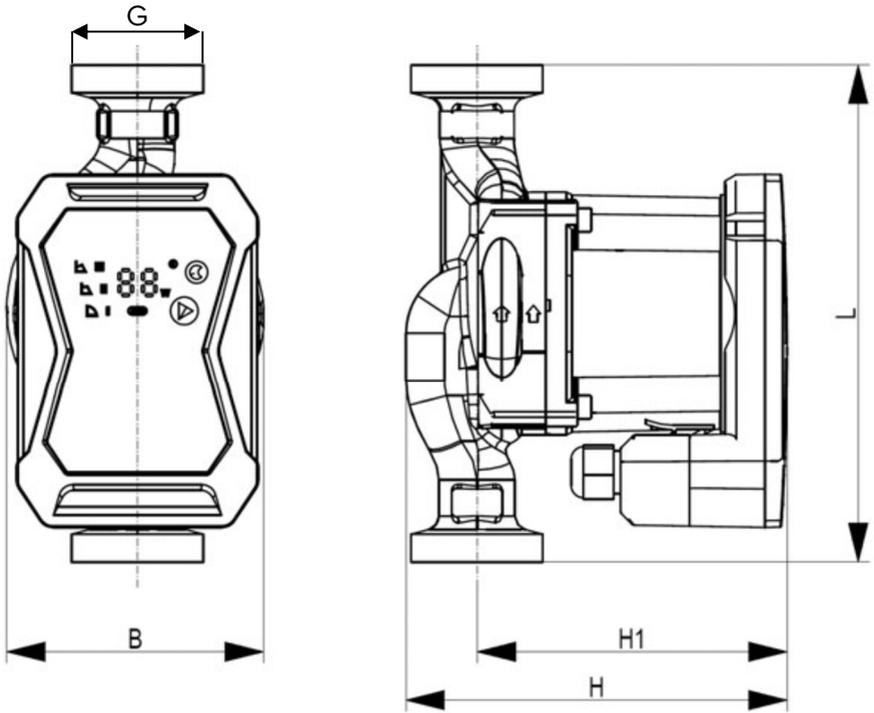


A voltage-free installation must be conducted with the pump motor in a horizontal position (the direction arrow on the pump body shows the direction of flow – ensure inlets/outlets fitted correctly). When performing thermal insulation, make sure that the pump and the electronics body are not insulated. If the installation position is to be changed, the pump must be rotated as follows.

- Loosen the hexagon socket screws
- Rotate the engine case
- Re-screw and tighten the hexagon socket screws.

System dimensions

Dimensional sketch and dimension table.



Pump Type	Dimensions						Technical Data	
	H (mm)	H1 (mm)	L (mm)	B (mm)	G (")	Weight kg (without cable)	Current (A)	Elevation height (m)
Trade 25-60/130	138	112	130	93	1 ½	2.12	0.04-0.25/0.04-0.31	0-4/0-6

13 Electrical Installation/Earthing

13.1 Regulations: The electrical installation must be carried out in accordance with the current local regulations by a qualified person.



13.2 Safety: In the interests of electrical safety a 30 mA residual current device (**R.C.D. not supplied**) should be installed in the supply circuit. This may be part of a consumer unit or a separate unit.

13.3 Before starting work on the electrical supply ensure power supply is isolated.

13.4 Earthing: This appliance must be earthed via the supply cord, which must be correctly connected to the earth point located in the terminal box.

13.5 Cable fitting: The pump must be factory fitted supply cord and permanently connected to the fixed wiring of the mains supply, via a dedicated double pole switched fused spur off the ring main.

13.6 DO NOT allow the supply cord to contact hot surfaces, including the motor shell, pump body or pipework. The cord should be safely routed and secured by cable clips, alternatively the cord must be protected by an insulating sleeving with appropriate temperature rating.

13.7 Wiring of connection unit:



WARNING: This appliance must be earthed.

The wires in the mains lead (supply cord) are coloured in accordance with the following code:

Green and Yellow: Earth (PE)

Blue: Neutral (N)

Brown: Live (L)

As the colours of the wires in the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your connection unit proceed as follows:

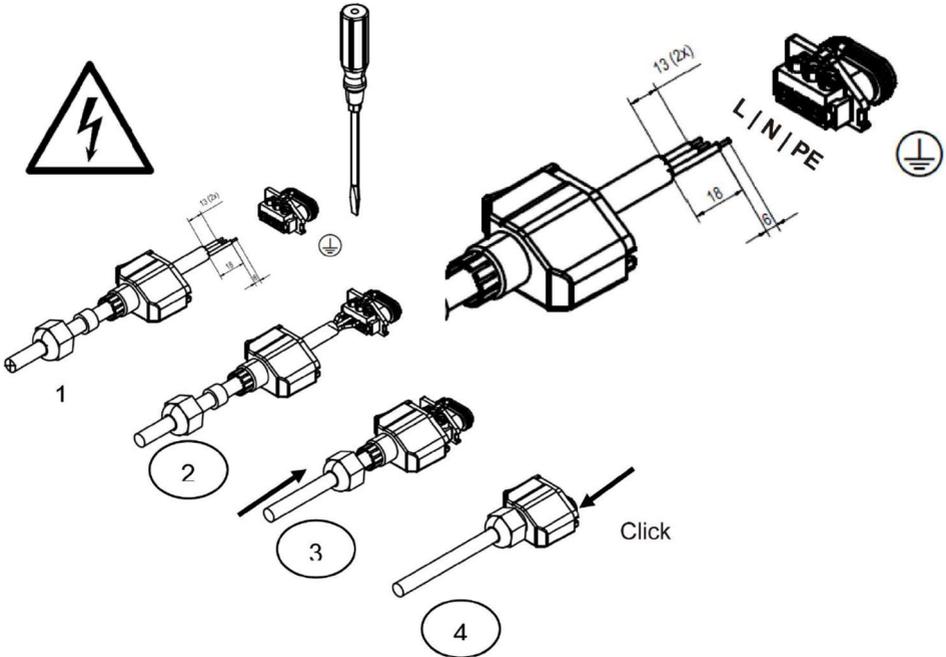
- The wire which is coloured green and yellow must be connected to the terminal in the connection unit which is marked with the letters PE or by the earth symbol \oplus : or coloured green or green and yellow.
- The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

- The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

Fuse: The pump MUST use a 5 Amp fuse.

Connect the power cord to the pump as shown in the below picture.

Caution mains voltage! Always observe the necessary safety measures, VDE regulations and local regulations.



Caution Danger to life!

Incorrect installation and incorrect electrical connection can be life-threatening. Electricity hazards must be ruled out.

- Installation and electrical connection may only be performed by qualified personnel and in accordance with the applicable regulations (e.g. IEC, VDE, etc.).
- The type of current and voltage must comply with the data on the rating plate.
- Comply with the regulations of the local power supply company.
- Comply with the accident prevention regulations.
- Never pull on the power cord.
- Do not bend the cord.
- Do not place any objects on the cord.
- There is a risk of sharp and jagged edges during assembly.
- Never transport by holding the power cord.
- There is a risk of injury from dropping the pump.



14 Maintenance/service

Before carrying out maintenance, cleaning and repair work, disconnect the system from the power supply and secure it against being switched on again by unauthorized persons.



At high water temperatures and system pressures, wait for the pump to cool down beforehand. There is a risk of burns!



15 Malfunctions, causes and elimination

Maintenance work or repair attempts may only be performed by qualified personnel. Before conducting maintenance, cleaning and repair work, disconnect the system from the power supply and secure it against being switched on again by unauthorized persons. At high water temperatures and system pressures, wait for the pump to cool down beforehand. **There is a risk of burns!**

Malfunction designation or pump error code	Possible cause	Remediation solution
The pump does not work, the display does not light up	Power error	Check the supply voltage at the pump. If necessary, switch the circuit breaker back on.
The pump works but delivers no water	Air in the system	Vent the pump (see chapter 8 in the manual).
	The valve is closed	Open the gate valve
Noise in the system	There is air in the system	Vent the system
	Pump capacity is too high	Check pump settings
The pump is making noise	Air in the pump	Vent the pump (see chapter 8 in the manual).
	System pressure is too low	Increase the pressure on the supply
	Defective expansion vessel	Check the amount of gas in the expansion vessel
The building does not heat up	Incorrect pump setting	Increase the setpoint (see chapter 7.3 in the manual)
	Night reduction can be switched on	Switch off night reduction
No automatic power adjustment in proportional pressure levels	An open overflow valve installed in the system makes it impossible to control	Remove or close the overflow valve, if possible.

Pump errors or codes displayed	Possible cause	Aid
E 1	Rotor block	Disconnect the pump from the power supply and secure it against being switched on again. If possible, close the overflow valves upstream and downstream of the pump or drain the water. Hot water may flow out depending on the operating status of the system! Danger of burns! Loosen the engine head by unscrewing the 4 hexagon socket screws and remove the pump head. It must be possible to turn the pump rotor easily. Remove any dirt or foreign bodies and reassemble the pump. If the defect persists, replace the pump.
E 2	Electronics malfunctions	Disconnect the pump from the mains for at least 1 minute. If the defect persists, replace the pump.
E 3	Over and under voltage	Disconnect the pump from the mains for at least 1 minute. If the defect persists, replace the pump.
E 4	Electronics malfunction; short circuit	Replace the pump.

If the defect cannot be eliminated, contact a specialized dealer.

After 10 seconds without pressing a button, the display turns off.
Pressing one of the two buttons turns it back on.

16 Disposal

The pump and its individual parts must not be disposed of with the municipal waste but must be disposed of in an environmentally friendly manner! To do this, use the services of public or private waste disposal companies. You can find a list of the materials used in our products in the download area of our website.

Advice:

- All illustrations in this manual are schematic representations. Please note that purchased electric pumps and accessories may differ from the illustrations in this manual.
- Product performance is constantly improved and all products (including appearance and colour, etc.) are subject to physical products; no notification will be given in the event of changes.

17 Warranty

PRODUCT WARRANTY TERMS & CONDITIONS

Congratulations on purchasing a Stuart Turner product

We are confident this product will provide many years of trouble-free service as all our products are manufactured to the very highest standard.

All **Pulse Trade 25-60/130 products** are warranted to be free from defects in materials or workmanship for **up to 5 years** from the date of purchase. Within the warranty period we will repair, free of charge, any defects in the product resulting from faults in material or workmanship, repairing or exchanging the whole unit as we may reasonably decide.

Warranty Exclusions

Not covered by this warranty: Damage arising from incorrect installation, improper use, unauthorised repair, normal wear and tear and defects which have a negligible effect on the value or operation of the pump.

This warranty is in addition to your statutory rights as a consumer. If you are in any doubt as to these rights, please contact your local Trading Standards Department.

Warranty Claim Procedure

In the event of a claim please telephone 'TechAssist' on **+44 (0) 800 31 969 80** or email us at techassist@stuart-turner.co.uk

In the event of a claim within the terms of this warranty policy, your receipt or 'proof of purchase' provided during registration will be reviewed.

You should obtain appropriate insurance cover for any loss or damage which is not covered by Stuart Turner Ltd in this provision. Please make a note for your own reference:

PRODUCT MODEL	SERIAL NO.	DATE PURCHASED



DECLARATION OF CONFORMITY



Supply of Machinery Regulations - 2008

EN ISO 12100:2010, EN 809:1998+A1:2009/AC:2010

Electrical Equipment Regulations - 2016

EN 60335-1:2012/A2:2019
EN 60335-2-51: 2003 + A1:2008 + A2:2012

EMC Regulations - 2016

EN 55014-1: 2006 + A1:2009 + A2:2011
EN 55014-2: 1997 + A1:2001 + A2:2008
EN 61000-3-2: 2014
EN 61000-3-3: 2013

EMF Regulations - 2016

EN 62233:2008

RoHS Regulations - 2012

EN IEC 63000:2018

Machinery Directive - 2006/42/EC

EN ISO 12100:2010, EN 809:1998+A1:2009/AC:2010

Low Voltage Directive - 2014/35/EC

EN 60335-1:2012/A2:2019
EN 60335-2-51: 2003 + A1:2008 + A2:2012

EMC Directive - 2014/30/EU

EN 55014-1: 2006 + A1:2009 + A2:2011
EN 55014-2: 1997 + A1:2001 + A2:2008
EN 61000-3-2: 2014
EN 61000-3-3: 2013

EMF Directive - 1999/519/EC

EN 62233:2008

RoHS Directive - 2011/65/EU

EN IEC 63000:2018

WEEE Directive - 2012/19/EU

IT IS HEREBY CERTIFIED THAT THE STUART PRESSURISATION UNIT AS SERIAL NUMBER BELOW, COMPLIES WITH THE ESSENTIAL REQUIREMENTS OF THE ABOVE STATUTORY REGULATIONS & E.U. DIRECTIVES.



STUART TURNER LIMITED
HENLEY-ON-THAMES, OXFORDSHIRE
RG9 2AD, ENGLAND.

RESPONSIBLE PERSON AND MANUFACTURER

Signed.....

EU AUTHORISED REPRESENTATIVE

ARC (AUTHORISED REP COMPLIANCE)
GND FLOOR, 71 LOWER BAGGOT
STREET, DUBLIN,
D02 P593, IRELAND.

Stuart Turner are an approved company to BS EN ISO 9001:2015



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