

SA-SPM6

Control box

Installation and operating instructions



English (US) Installation and operating instructions

Original installation and operating instructions.

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Warning

Prior to installation, read these installation and operating instructions. Installation and operation must comply with local regulations and accepted codes of good practice.

This booklet should be left with the owner of the pump for future reference and information regarding its operation.

Warning

The use of this product requires experience with and knowledge of the product.

Persons with reduced physical, sensory or mental capabilities must not use this product, unless they are under supervision or have been instructed in the use of the product by a person responsible for their safety.

Children must not use or play with this product.

To reduce the risk of electric shock, disconnect power before servicing unit. Failure to properly disconnect power could result in fire, serious injury, or death.

1. Limited warranty

Products manufactured by GRUNDFOS PUMPS CORPORATION (Grundfos) are warranted to the original user only to be free of defects in material and workmanship for a period of 24 months from date of installation, but not more than 30 months from date of manufacture. Grundfos' liability under this warranty shall be limited to repairing or replacing at Grundfos' option, without charge, F.O.B. Grundfos' factory or authorized service station, any product of Grundfos' manufacture. Grundfos will not be liable for any costs of removal, installation, transportation, or any other charges which may arise in connection with a warranty claim. Products which are sold but not manufactured by Grundfos are subject to the warranty provided by the manufacturer of said products and not by Grundfos' warranty. Grundfos will not be liable for damage or wear to products caused by abnormal operating conditions, accident, abuse, misuse, unauthorized alteration or repair, or if the product was not installed in accordance with Grundfos' printed installation and operating instructions.

To obtain service under this warranty, the defective product must be returned to the distributor or dealer of Grundfos' products from which it was purchased together with proof of purchase and installation date, failure date, and supporting installation data. Unless otherwise provided, the distributor or dealer will contact Grundfos or an authorized service station for instructions. Any defective product to be returned to Grundfos or a service station must be sent freight prepaid; documentation supporting the warranty claim and/or a Return Material Authorization must be included if so instructed.

GRUNDFOS WILL NOT BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES, OR EXPENSES ARISING FROM INSTALLATION, USE, OR ANY OTHER CAUSES. THERE ARE NO EXPRESS OR IMPLIED WARRANTIES, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH EXTEND BEYOND THOSE WARRANTIES DESCRIBED OR REFERRED TO ABOVE.

Some jurisdictions do not allow the exclusion or limitation of incidental or consequential damages and some jurisdictions do not allow limit actions on how long implied warranties may last. Therefore, the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have other rights which vary from jurisdiction to jurisdiction.



2. Symbols used in this document



Warning

If these safety instructions are not observed, it may result in personal injury.



Warning

If these instructions are not observed, it may lead to electric shock with consequent risk of serious personal injury or death.



If these safety instructions are not observed, it may result in malfunction or damage to the equipment.



Notes or instructions that make the job easier and ensure safe operation.

3. Installation



Warning

The SA-SPM6 Grundfos Submersible Pump Control Box shall be installed per local, state, and federal codes in accordance with NFPA (National Fire Protection Association) requirements.



The SA-SPM6 Grundfos Submersible Pump Control Box is intended for use with single phase 3-wire submersible motors as a start control device only.

See <http://www.nfpa.org/Codes/index.asp>.

3.1 Mechanical installation

3.1.1 Mounting

Be sure that the control box is mounted in the vertical position with the top side up.

If it is mounted in any other position, the starting relay may not function and the overload may trip.

Securely attach the control box to the mounting surface using the mounting holes provided.

3.2 Electrical installation

3.2.1 Wiring

The control box should be wired to the line and the motors as shown in section 7. [Wiring diagrams](#) on page 5. See also section [3.2.2 Grounding](#) on page 3.

Use 14-10 AWG (75 °C) copper wires/conductors only and tighten torque on connections to 20 lbs*inch.



The pump will not operate without this control box. Operation without the control box will burn out the motor.

This control is for submersible pumps only.

Verify the intended submersible pump, motor and control box are the same horsepower and voltage.

Terminate properly sized (AWG gauge) motor and service leads per fig. 1 on page 5.

Before making the final surface wiring connection of the drop cable to the control box or panel, check the insulation resistance.

3.2.2 Grounding



Warning

Switch power supply to this circuit OFF at the power supply panel (not in this control) before working on or around the control, pipes, cable, pump or motor.



Warning

The control box panel shall be permanently grounded in accordance with the National Electrical Code, local codes and regulations.

The ground wire should be a conductor at least the same size (AWG gauge) as the drop cable wire size. The ground wire should be run as short a distance as possible and be securely fastened to a true grounding point.



Warning

WHEN WORKING WITH ELECTRICAL CIRCUITS, USE CAUTION TO AVOID ELECTRIC SHOCK.

It is recommended that rubber gloves and boots be worn and that care is taken to have metal control boxes and motors grounded to power supply ground or steel drop pipe or casing extending into the well.

To prevent hazard of fatal or serious electric shock:

- Connect control box, all metal plumbing, and the motor frame to the power supply grounding terminal using copper wire. Comply with electrical codes. (A ground wire at least the size of power wires complies. Smaller wire may comply under some conditions.)
- Permanently close all unused wire openings in this and other equipment.

Switch power supply to this circuit OFF at the power supply panel (not in this control box) before working on or around the control box, pipes, cable, pump or motor.

3.2.3 Protection

Caution

Installation of this motor and control must include circuit and component protection in compliance with the U.S. National Electrical Code or Canadian Electrical Code, Part 1.

Warning

Risk of electric shock: This pump has been evaluated for use with water only.

This pump has not been investigated for use in swimming pools or marine areas.



Fuses

Control box is suitable for use on a circuit capable of delivering not more than 5kA at 230 V when protected by Class RK1, RK5 or J fuses. See table for fuse size:

Hp	Fuse size
2 Hp	15A
3 Hp	20A
5 Hp	30A

Trip of overload

Trip of overload indicates a shorted capacitor, voltage problems, an overloaded or locked pump, or the start relay should be replaced. Reset and analyze for tripping cause. Do not remove or short out overload protection, since doing so could cause motor burnout.

4. Operation and maintenance

Service and installation should be performed by a qualified service representative.

5. Troubleshooting



Warning

Ensure that power supply is turned OFF prior to electrical installation.

- Overload, if equipped, 1.5 Hp and up: (Push reset button to make sure contacts are closed).
 - Ohmmeter setting: (Rx1).
 - Terminal connections: ohmmeter leads to overload terminals.
 - Ohmmeter reading: should not be over 0.5 ohms.
- Capacitor (disconnect one lead from each capacitor prior to checking).
 - Ohmmeter setting: (Rx1000).
 - Terminal connections: individual capacitor terminals.
 - Ohmmeter reading: pointer should swing toward zero then drift back toward infinity.
- Relay coil (disconnect lead from terminal 5).
 - Ohmmeter setting: (Rx1000).
 - Terminal connections: "5" and "2" on relay.
 - Ohmmeter reading: 4500-7000 ohms.
- Relay contact (disconnect lead from terminal 1).
 - Ohmmeter setting: (Rx1).
 - Terminal connections: "1" and "2" on relay.
 - Ohmmeter reading: should be zero.
- Magnetic contactor only, if equipped, DLX box only (disconnect 1 coil lead).
 - Ohmmeter setting: (Rx1000).
 - Check coil resistance: 1000 - 1400 ohms.
 - Remove contact cover and inspect contacts.

6. Approvals

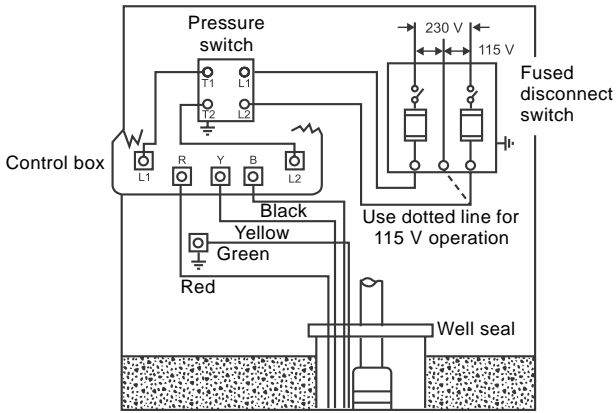


1/2 - 3/4 - 1 - 1.5 Hp



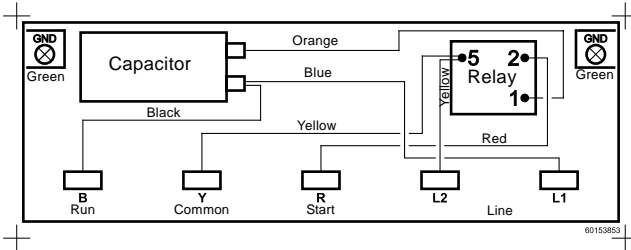
2 - 3 - 5 Hp

7. Wiring diagrams



TM05 0037 2413

Fig. 1 Overview of single-phase wiring for Grundfos 3-wire control boxes



TM06 0454 0214

Fig. 2 Wiring for 0.5 to 1 Hp models

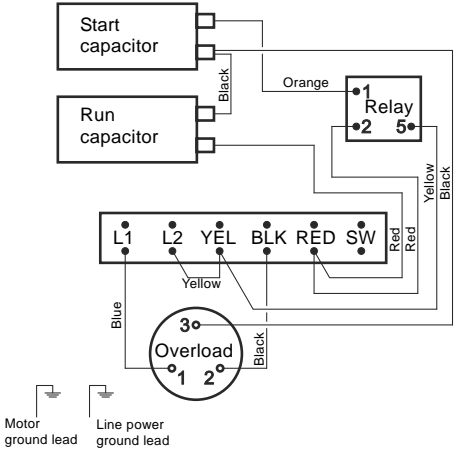


Fig. 3 Wiring for 1.5 Hp models (Standard)

TM06 0456 0214

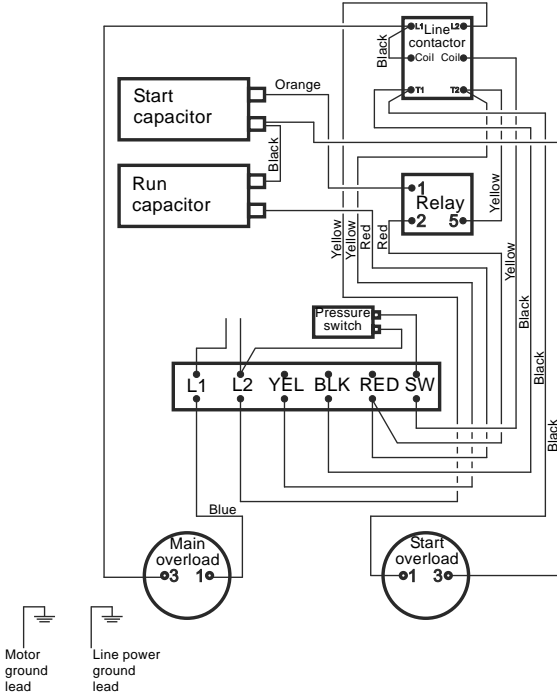


Fig. 4 Wiring for 1.5 Hp models (Deluxe)

TM06 0457 0214

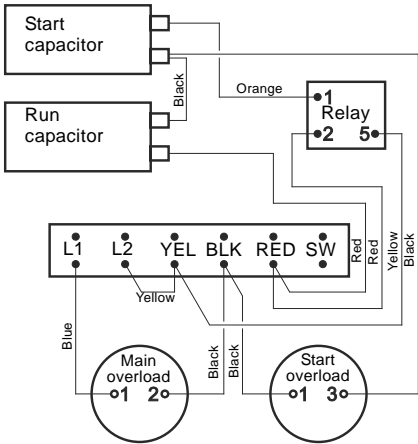


Fig. 5 Wiring for 2 and 3 Hp models (Standard)

TM06 0458 0214

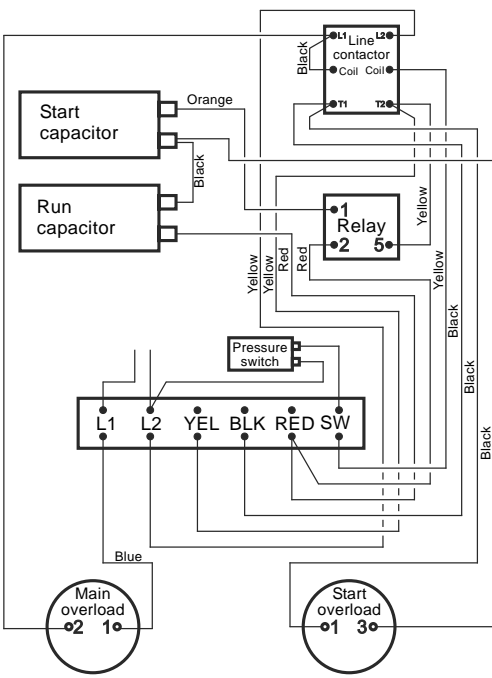
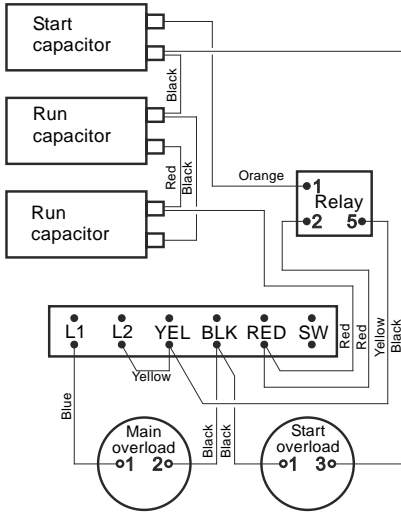


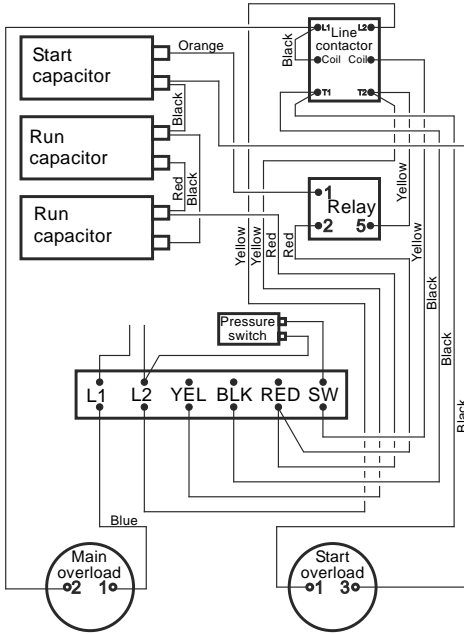
Fig. 6 Wiring for 2 and 3 Hp models (Deluxe)

TM06 0459 0214



TTM06 0460 0214

Fig. 7 Wiring for 5 Hp models (Standard)



TM06 0461 0214

Fig. 8 Wiring for 5 Hp models (Deluxe)

8. Disposal

This product or parts of it must be disposed of in an environmentally sound way:

1. Use the public or private waste collection service.
2. If this is not possible, contact the nearest Grundfos company or service workshop.

Subject to alterations.

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