

UPZCP-3, 4, 6

Multi-zone pump control

Installation and operating instructions



English (US) Installation and operating instructions

Original installation and operating instructions

These installation and operating instructions describe Grundfos UPZCP-3, 4, 6. Sections 1-5 give the information necessary to be able to unpack, install and start up the product in a safe way.

Sections 6-9 give important information about the product, as well as information on service and disposal of the product.

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1. Limited warranty

New equipment manufactured by seller or service supplied by seller is warranted to be free from defects in material and workmanship under normal use and service for a minimum of twelve (12) months from date of installation, eighteen (18) months from date of shipment, unless otherwise stated in product warranty guide (available upon request). In the case of spare or replacement parts manufactured by seller, the warranty period shall be for a period of twelve months from shipment. Seller's obligation under this warranty is limited to repairing or replacing, at its option, any part found to its satisfaction to be so defective, provided that such part is, upon request, returned to seller's factory from which it was shipped, transportation prepaid. Parts replaced under warranty shall be warranted for twelve months from the date of the repair, not to exceed the original warranty period. This warranty does not cover parts damaged by decomposition from chemical action or wear caused by abrasive materials, nor does it cover damage resulting from misuse, accident, neglect, or from improper operation, maintenance, installation, modification or adjustment. This warranty does not cover parts repaired outside seller's factory without prior written approval. Seller makes no warranty as to starting equipment, electrical apparatus or other material not of its manufacture. If purchaser or others repair, replace, or adjust equipment or parts without seller's prior written approval, seller is relieved of any further obligation to purchaser under this paragraph with respect to such equipment or parts, unless such repair, replacement, or adjustment was made after seller failed to satisfy within a reasonable time seller's obligations under this paragraph. Seller's liability for breach of these warranties (or for breach of any other warranties found by a court of competent jurisdiction to have been given by seller) shall be limited to: (a) accepting return of such equipment exw plant of manufacture, and (b) refunding any amount paid thereon by purchaser (less depreciation at the rate of 15 % per year if purchaser has used equipment for more than thirty [30] days), and canceling any balance still owing on the equipment, or (c) in the case of service, at seller's option, redoing the service, or refunding the purchase order amount of the service or portion thereof upon which such liability is based. These warranties are expressly in lieu of any other warranties, express or implied, and seller specifically disclaims any implied warranty of merchantability or fitness for a particular purpose, and in lieu of any other obligation or liability on the part of the seller whether a claim is based upon negligence, breach of warranty, or any other theory or cause of action. In no event shall seller be liable for any consequential, incidental, indirect, special or punitive damages of any kind. For purposes of this paragraph, the

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.



equipment warranted shall not include equipment, parts, and work not manufactured or performed by seller. With respect to such equipment, parts, or work, seller's only obligation shall be to assign to purchaser the warranties provided to seller by the manufacturer or supplier providing such equipment, parts or work. No equipment furnished by seller shall be deemed to be defective by reason of normal wear and tear, failure to resist erosive or corrosive action of any fluid or gas, purchaser's failure to properly store, install, operate, or maintain the equipment in accordance with good industry practices or specific recommendations of seller, including, but not limited to seller's installation and operation manuals, or purchaser's failure to provide complete and accurate information to seller concerning the operational application of the equipment.

2. General information

This is a multi-zone pump control relay for domestic hydronic heating systems. It provides control when zoning with pumps or low voltage zone valves.

2.1 Symbols used in this document



WARNING

If you do not observe these safety instructions, it may result in personal injury.



WARNING

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

CAUTION

Caution

If you do not observe these safety instructions, it may result in malfunction or damage to the equipment.

3. Receiving the product

3.1 Inspecting the product

Examine the components carefully to make sure no damage has occurred to the product during shipment.

4. Installing the product

WARNING



Electrical shock and potential circuit damage. Disconnect the power supply before beginning installation. All wiring must comply with national and local electrical codes, ordinances and regulations. Failure to follow electrical codes could result in serious personal injury, death, and property damages.

CAUTION

Caution

Disconnect the power supply before changing any DIP switch settings.

4.1 Mechanical installation

4.1.1 Installing the base

Attach the base firmly to the wall surface with four screws and anchors using the key holes provided.

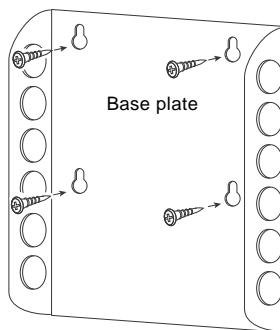


Fig. 1 Attach the base plate to the wall with screws and anchors

4.2 Electrical connections

CAUTION

Class 2 wiring must be segregated from the wiring of Class 1 circuits.

Caution

When Class 2 wiring is routed with Class 1 wiring, the Class 2 wiring insulation must be rated for the minimum voltage of the Class 1 wiring. Segregation is not required if all circuits are wired as Class 1, electric light or power circuits.

4.2.1 Wiring connections

- All electrical connections must be made using copper wire only.
- 12-16 AWG wire is recommended for 120 VAC connections.
- 12-22 AWG wire for thermostat connections.
- 12-22 AWG wire for 24 VAC connections.
- Use approved UL conduit fittings.
- You can find additional wiring schematics, specs, and troubleshooting help online at www.grundfos.us/controls.

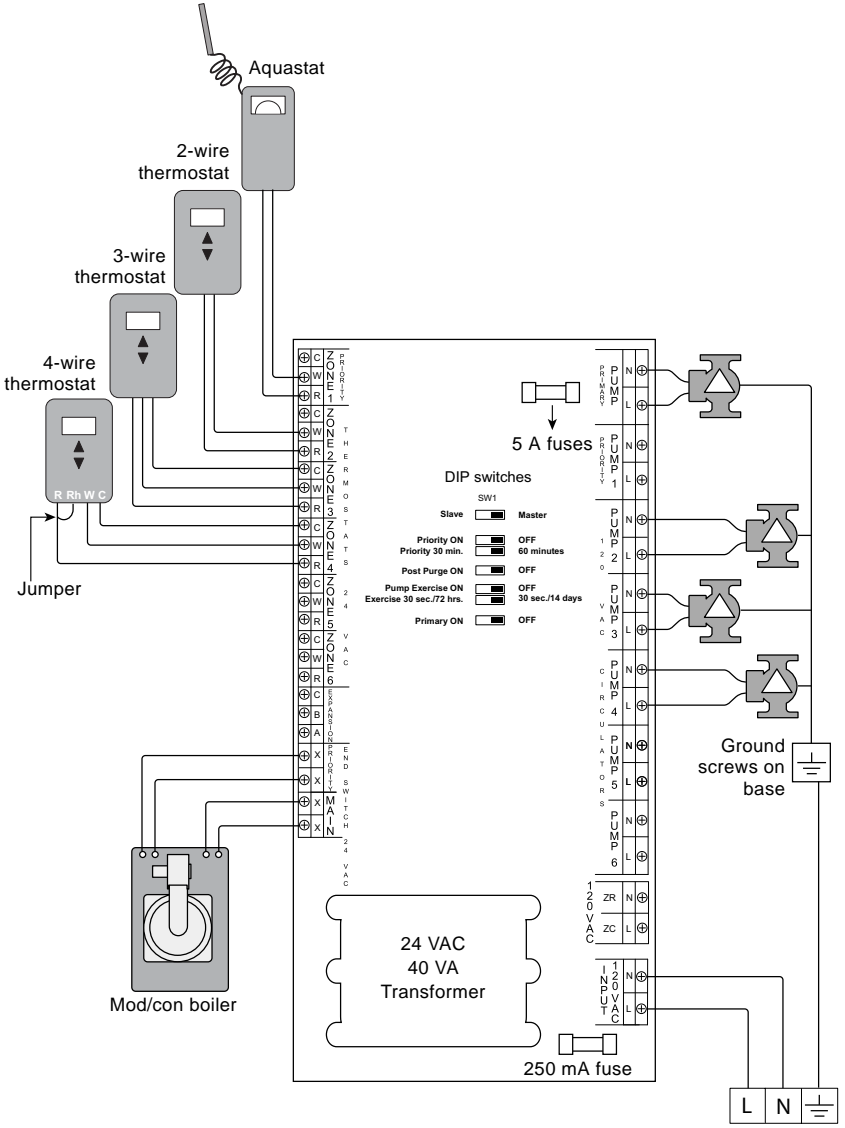


Fig. 2 UPZCP-6 multi-zone pump board layout

DIP switches

The DIP switch settings are also listed in section 5.2 *DIP switch settings*. See fig. 2.

Master/Slave: Allows expansion to additional UPZC units.

Priority ON: Zone 1 operates as priority and the other zones are switched off for a selectable 30- or 60-minute timeout.

Post purge ON: The boiler pump will continue to run for two minutes after priority ends to remove residual heat from the boiler.

Pump Exercise ON: The pumps will operate for 30 seconds every 72 hours or every 14 days.

Primary pump ON: During the PRIORITY demand, select whether the PRIMARY PUMP is ON or OFF.

TM06 5605 5015

Multi-zone pump board expansion

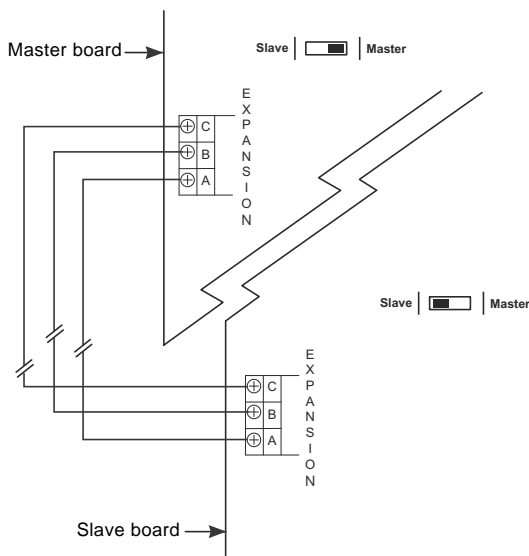


Fig. 3 UPZCP multi-zone pump board expansion

See fig. 3.

- You can only use the MASTER controller with PRIORITY.
- When priority calls, the MASTER board will produce 5 VDC between terminals B and C. This tells the SLAVE board to turn off any zones that are calling for heat. This also will close the contacts XX PRIORITY.
- When there is a demand for heat, the SLAVE board will produce 5 VDC between terminals A and C. This tells the MASTER board to activate any boiler or secondary pumps and close the contacts XX MAIN.
- You can connect the pump and valve boards.
- When the SLAVE board calls for heat, the secondary pump will be powered. If a boiler pump and secondary pump are to be used, connect them to the same terminals.
- You can use the low voltage wire to connect ABC terminals.
- Connect the 120 VAC power supply to each board.

CAUTION

Caution

Connect the L and N terminals the same way on each board. If switched, a differential of 240 VAC can occur resulting in damage to the equipment.

TM06 5606 5015

5. Starting up the product

5.1 LED diagnostics

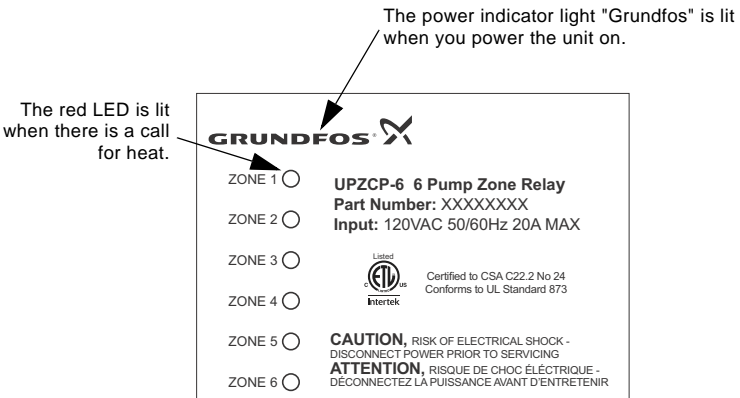


Fig. 4 The indicator lights located on the control plate

5.2 DIP switch settings

CAUTION

Caution

Disconnect the power supply before changing any DIP switch settings.

Slave	<input type="checkbox"/>	Master
Priority ON	<input type="checkbox"/>	OFF
Priority 30 min.	<input type="checkbox"/>	60 minutes
Post Purge ON	<input type="checkbox"/>	OFF
Pump Exercise ON	<input type="checkbox"/>	OFF
Exercise 30 sec./72 hrs.	<input type="checkbox"/>	30 sec./14 days
Primary ON	<input type="checkbox"/>	OFF

TM06 5585 0516

Master/Slave

Allows expansion to additional Grundfos UPZC units.

Priority ON

Zone 1 operates as priority and the other zones are switched off for a selectable 30- or 60-minute timeout.

Post purge ON

The boiler pump will continue to run for two minutes after priority ends to remove residual heat from the boiler.

Pump Exercise ON

Pumps will operate for 30 seconds every 72 hours or every 14 days.

Primary pump ON

During the PRIORITY demand, select whether the PRIMARY PUMP is ON or OFF.

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6. Product introduction

6.1 Features and benefits

- Compatible with 2-, 3-, and 4-wire low voltage controllers or thermostats.
- Wiring ease with 120 VAC, ground and low voltage screw terminal inputs.
- Low voltage end-switch output terminals for the zone valves.
- Zone priority with selectable time-out feature
- Pump exercise feature, selectable 72-hours or 14-days.
 - The pumps will be turned on for 30 seconds every 72 hours or 14 days in order to prevent pumps from seizing up. This feature will only work if there is a jumper wire connecting the ZR ZC terminals on the pump controller.
- Post purge feature for pump controllers (3, 4, and 6 zones).
 - After the priority zone calls for heat, the priority pump will be allowed to run for an additional 2 minutes after the thermostat contacts open. This allows some of the residual heat in the boiler to be transferred to the water.
- Boiler demand terminals.
 - The two terminals, labeled MAIN XX, are wired to the boiler. When the contacts close, the boiler starts and will come up to a preset temperature for hydronic heating.
- DHW terminal.
 - The two terminals, labeled PRIORITY XX, are wired to the boiler. When the contacts close, the boiler starts and will come up to a preset temperature for domestic hot water heating.
- ZR and ZC terminals.
 - Available on the pump controllers only. These terminals are connected by a jumper wire at the factory. The ZR terminal is always powered with 120 VAC. When you remove the jumper wire, all 120 V power is removed from the pumps.
- Front facing LED indicator lights on the cover.
- Side-mounted terminal connections for ease of wiring and installation.

6.2 Identification

6.2.1 Models

Model	Description
UPZCP-3	Three-pump zone control
UPZCP-4	Four-pump zone control
UPZCP-6	Six-pump zone control

6.2.2 Production code

The production code represents the date of manufacture. You can find the production code on the circuit board and the carton label.

Example:

PC 1542 = year 2015, week 42.

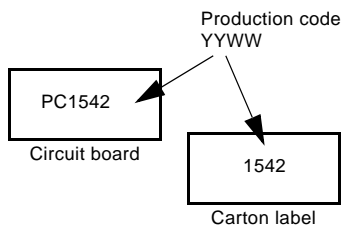


Fig. 5 Locating production code

7. Servicing the product

7.1 Service parts

Part	Description
5 A fuse	Kit, UPZC pump fuse, 5-pack
250 mA fuse	Kit, UPZC transformer fuse, pump board 250 mA, 5-pack
500 mA fuse	Kit, UPZC transformer fuse, pump board 500 mA, 5-pack

8. Technical data

	Three-zone pump	Four-zone pump	Six-zone pump
Model number	UPZCP-3	UPZCP-4	UPZCP-6
Input power 60 Hz	120 VAC		
Transformer voltage	24 VAC, 40 VA, Class 2		
Thermostat output [A]	0.375	0.5	0.75
Maximum single phase motor rating, per zone [A]	5		
Maximum combined load rating: output @ 120 VAC [A]	20		
Temperature range (storage) [°F (°C)]	50-100 (10-38)		
Temperature range (maximum operation) [°F (°C)]	0-100 (-18 - +38)		
Maximum operating humidity range [%] RH	90		
Number of knockouts	12		
Size of knockouts [in. (mm)]	0.875 (22)		
Dimensions, W x H x D [in. (mm)]	8.15 x 10.67 x 2.72 (208 x 272 x 70)		
Approvals	CSA 22.2 No. 24/UL Standard 873		
Relay type	Sealed		
Cover panel	ABS - fire rated		
Base material	Galvanized steel		
Terminal block (side mounted)	PA66		
Front display lights	LED		

9. Disposing of the product

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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