



Installation and Operation Accessory kit for **FriwaMidi cascade** **FriwaMaxi cascade**

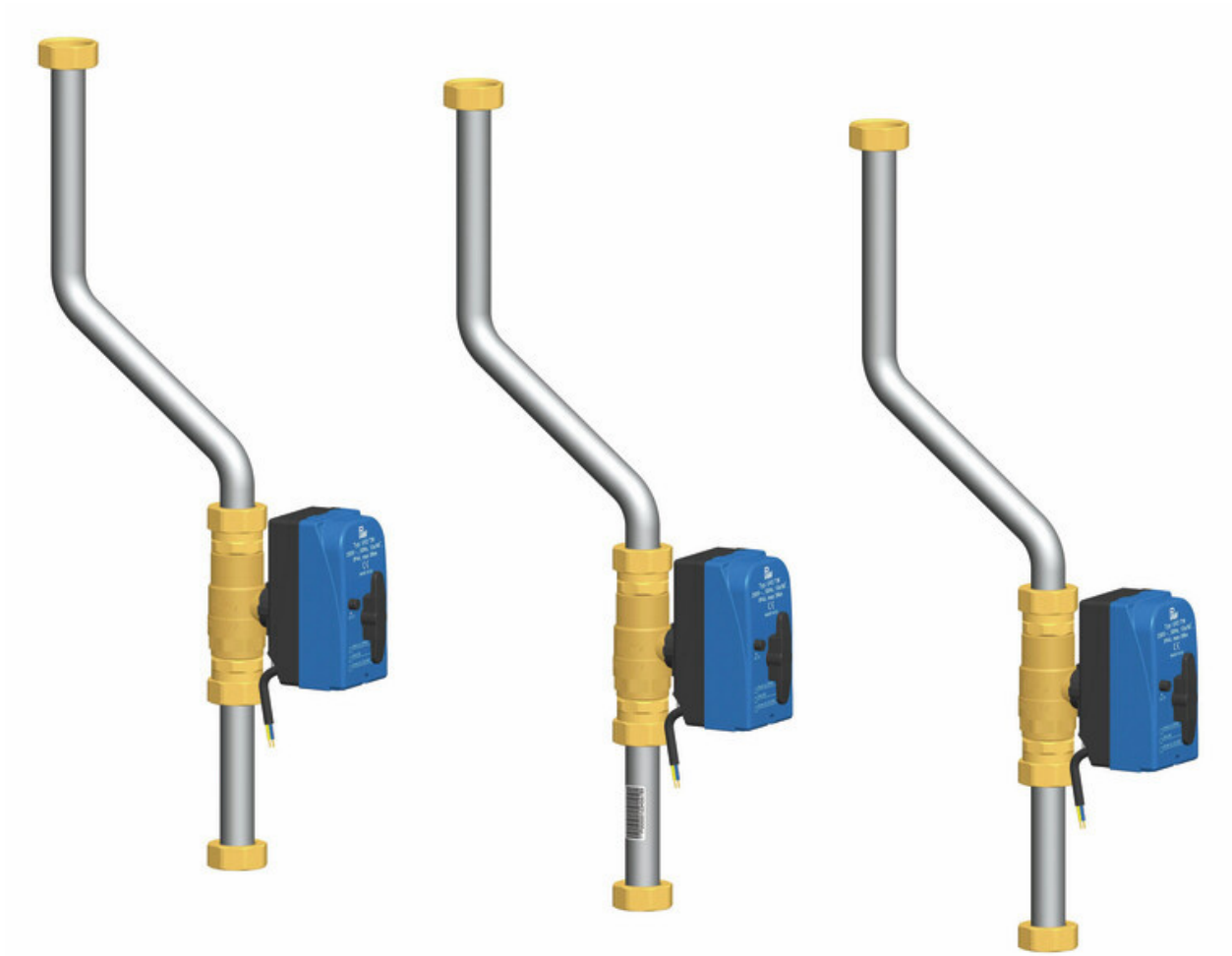


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1 General Information



Carefully read these instructions before installation and commissioning.

Save these instructions in the vicinity of the installation for future reference.

1.1 Scope of these instructions

These instructions describe the assembly of the accessory kit for the cascade of the FriwaMidi DN 20 and the FriwaMaxi DN 25.

The chapters marked with [specialist] are intended for specialists only.

The commissioning of the domestic hot water modules is described in their respective instructions, which are enclosed with the individual modules.

For other components of the installation, such as storage tanks, controllers or pumps, please observe the instructions of the corresponding manufacturer.

This product complies with the relevant directives and is therefore labelled with the CE mark. The Declaration of Conformity is available upon request, please contact the manufacturer.

1.2 About this product

The accessory kit for the Friwa cascade contains the piping within the individual modules, the thread connections, the required number of connecting lines and 2-way zone valves.

The motor-driven ball valves are DVGW certified and suitable for DHW modules. In the manual mode, the ball valves can be opened and closed manually.

1.3 Designated use

The accessory kit is used to cascade two, three or four **identically constructed** domestic hot water modules. The technical limit values specified in these instructions must be observed.

Improper usage excludes any liability claims.

2 Safety instructions

The installation and commissioning as well as the connection of electrical components require technical knowledge commensurate with a recognised vocational qualification as a fitter for plumbing, heating and air conditioning technology, or a profession requiring a comparable level of knowledge [specialist].

The following must be observed during installation and commissioning:

- relevant local and national regulations
- accident prevention regulations of the professional association
- instructions and safety instructions mentioned in these instructions

WARNING



Risk to life and limb due to electric shock!

- ▶ Prior to commencing electrical work on the controller, pull the mains plug!
- ▶ Only after completing all work, plug the mains plug into a socket. This avoids an unintentional start of the motors.

NOTICE

Material damage due to mineral oils!

Mineral oil products cause lasting damage to seals made of EPDM, whereby the sealant properties are lost. We do not assume liability nor provide warranty for damage to property resulting from sealants damaged in this way.

- ▶ It is imperative to prevent the EPDM sealing elements from making contact with substances containing mineral oils.
- ▶ Use a silicone- or polyalkylene-based lubricant free of mineral oil such as Unisilikon L250L and Syntheso Glep 1 from Klüber or a silicone spray.

3 Mounting and installation [specialist]

NOTICE

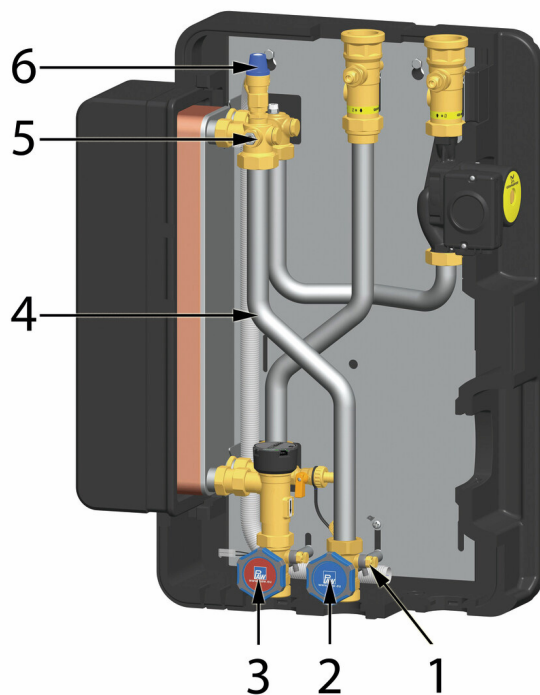
Damage to property!

The installation site must be dry, stable, frost-proof and protected against ultraviolet radiation in order to prevent material damage of the installation.

3.1 Mounting the 2-way-zone-valve

The accessory kit can only be mounted in domestic hot water modules of the type FriwaMidi or FriwaMaxi from February 2024 on. For older domestic hot water modules, other assembly sets must be used.

If you have any questions about the spare parts required for your installation, please keep the serial number ready (it is placed in the lower right corner of the retaining plate of the module).



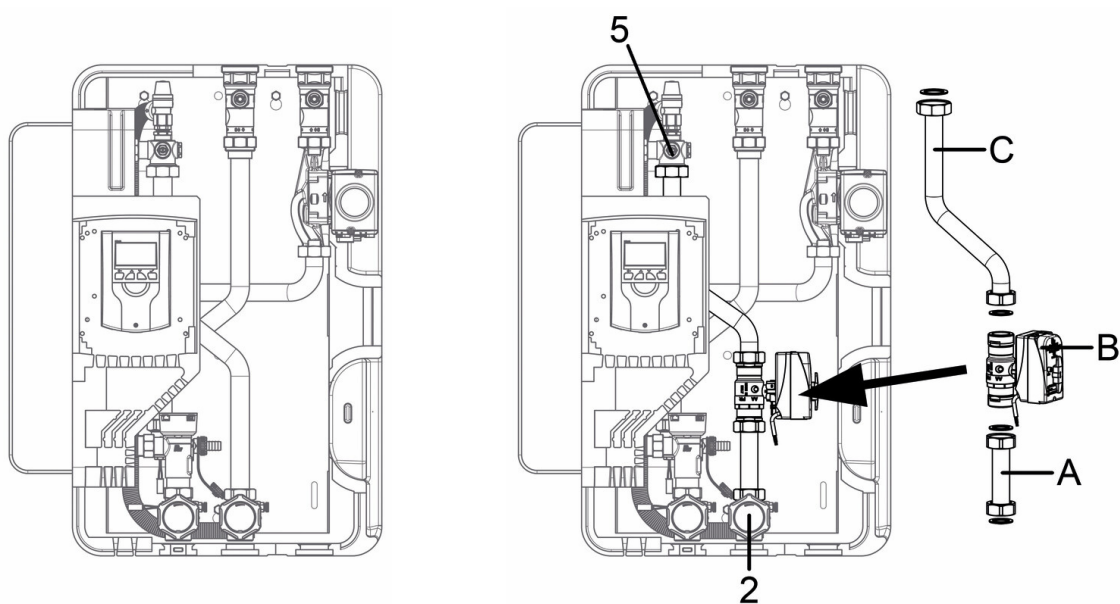
1. Remove the insulating front shell of each module.
2. Close the piston valves (2) and (3) of the domestic hot water circuit.
3. Drain the double bent pipe (4) in the cold water inlet by opening the drain valve (1).
Use a hose for a controlled draining of the liquid.
4. Actuate the pressure relief valve (6) several times to vent the pipe.
5. Dismount the pipe (4) in the cold water inlet of the module between the piston valve (2) and the connection piece (5) at the heat exchanger.

NOTICE

Use the new seals included! Screw the thread connections at first manually and adjust the pipes, in order to guarantee a low-tension installation.

Procedure for one module:

1. Mount the short and straight pipe section (A) on the piston valve (2).
2. Screw the zone valve (B) on it in such a way that the actuator is aligned laterally.
The cable of the actuator must point downwards (flow A to B, from the bottom to the top).
3. Screw the short end of the long double bent pipe (C) between the zone valve and the elbow piece (5).
4. Firmly tighten all screw connections afterwards.
5. Connect the valve to the controller of the module (see chapter for the controller connection) and activate the automatic operation mode (see the separate instructions of the zone valve).
6. Mount the other domestic hot water modules to the wall in the same way.
7. Connect the controllers of the cascade with the delivered communication cable (see chapter for the controller connection).



Before

Installation of the accessory kit for cascade operation

3 Mounting and installation [specialist]

3.2 Controller connection FC3.10

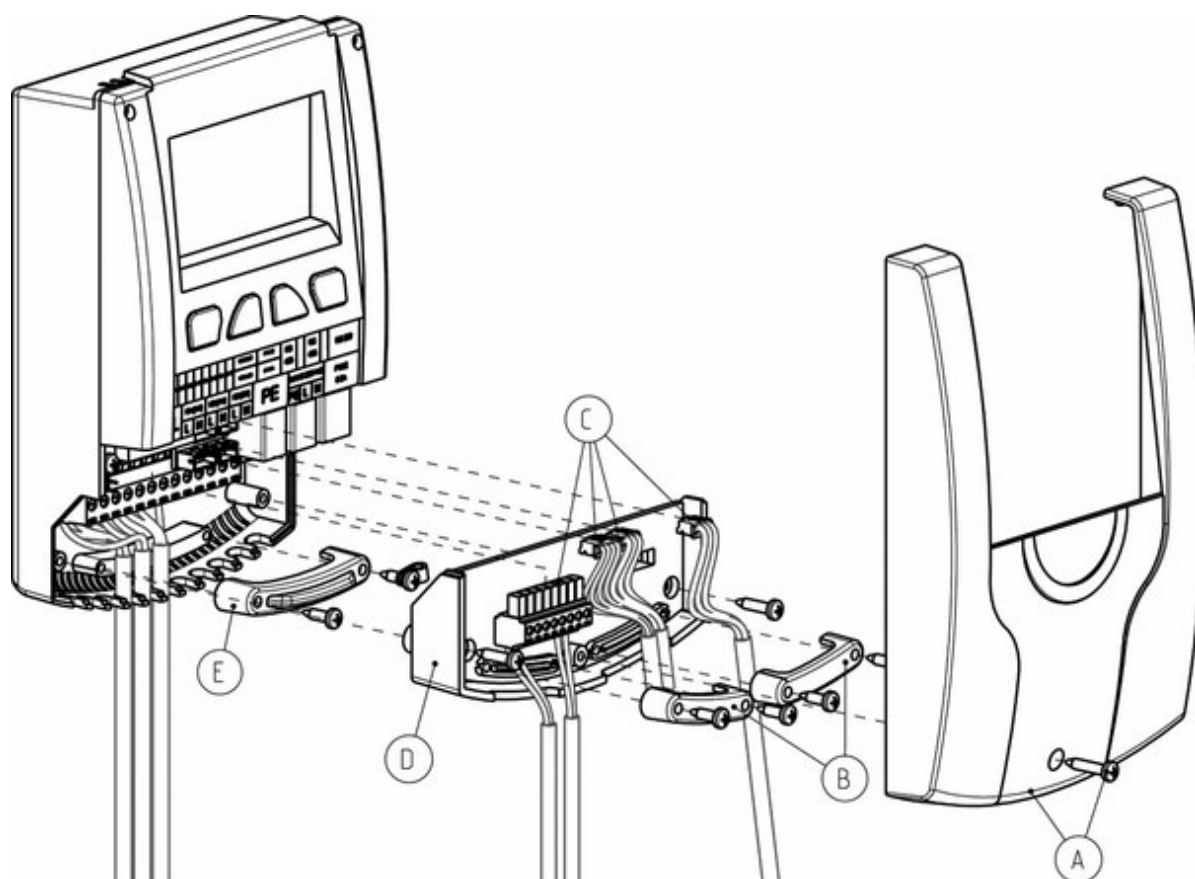
The following illustrations show how to connect the 2-way zone valves (switch valves) electrically to the controller, and how to connect the controllers with each other in order to establish a communication between them.

WARNING



Risk to life and limb due to electric shock!

- ▶ Prior to commencing electrical work on the controller, pull the mains plug!
- ▶ Only after completing all work, plug the mains plug into a socket. This avoids an unintentional start of the motors.

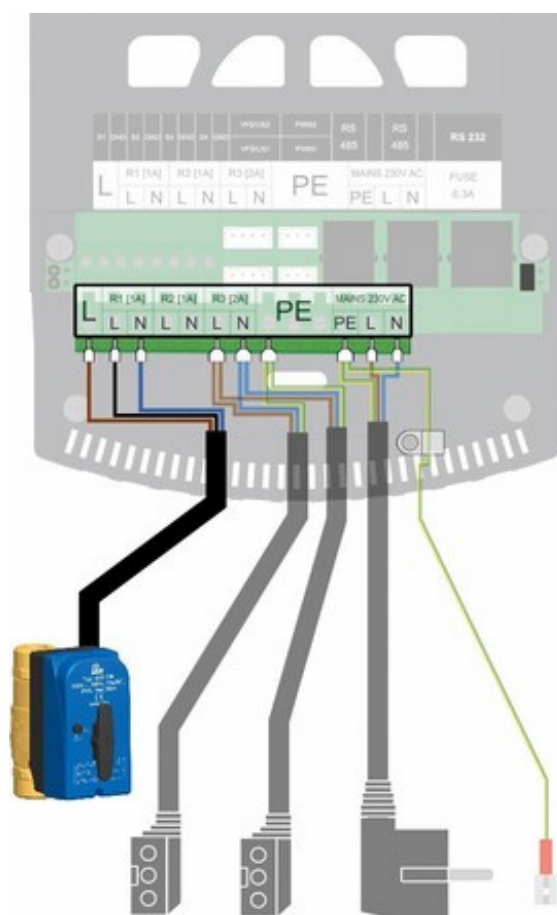


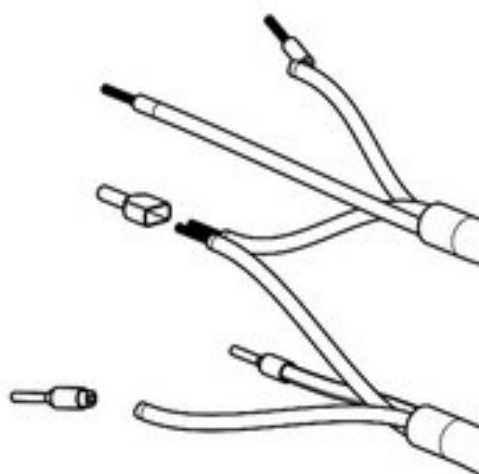
1. Remove the white front panel (A) of the controller.
2. Then, remove the strain reliefs (B).
3. After that, remove the sensor cables of the VFS/US sensors, of the PWM signal and the temperature sensors from the controller circuit board plug connector (C). Alternatively, the entire PCB connector with cables can be pulled out.
4. In the next step, unscrew the two screws to remove the intermediate level (D).
5. Remove the strain relief on the 230 V level (E).
6. Connect the 2-way zone valve to the relay 1. Observe the polarity of the PWM connection:

Brown: L_{const}

Black: L

Blue: N





7. If, in addition to the 2-way zone valve, the 3-way valve for the stratification is also supposed to be connected to the relay 2, connect both wires (L_{const}) to "L" by means of a duo wire end ferrule (twin wire end ferrule).

See controller instructions, chapter "Stratification".

8. Mount the strain relief of the 230 V level and the intermediate level.
9. Connect the controllers with each other via a bus line. To do this, put the plug of the bus line into the socket marked with "RS 485".

Recommendation:

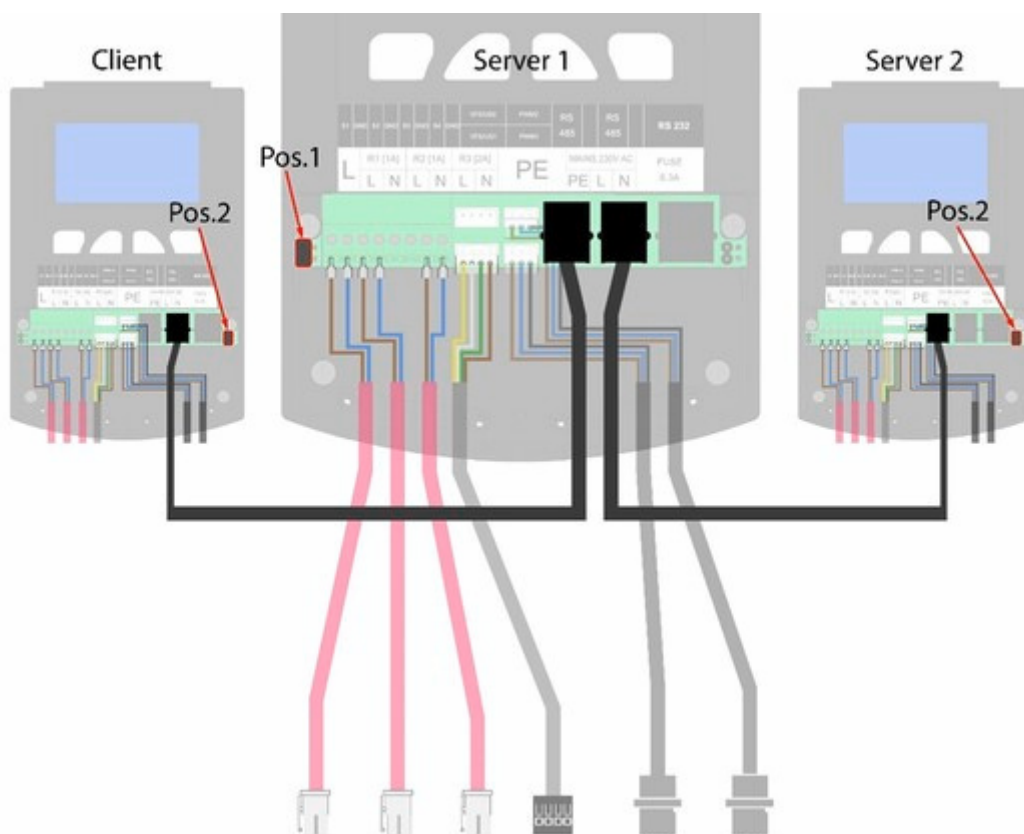
Arrange the controllers from left to right in the following order:

client, server 1, server 2, server 3.

Observe the controller instructions.

Cascade connection of the domestic hot water modules

The following illustration shows how the three domestic hot water modules must be connected via two bus lines in a cascade connection.



Plug the jumper of the first and the last participant of the modbus communication into the plug connector which is marked as "Pos. 2".

The jumper of the controller which is connected between the first and the last participant must be plugged into the marked "Pos. 1" of the plug connector.

After that, mount the two strain reliefs and the front panel of the controller.

Set up the power supply of the installation and put the controller into operation according to the controller instructions.

The following table shows the required positions of the jumpers, depending on the number of the domestic hot water modules / cascade modules which are part of the cascade connection.

Number of cascade modules	Client	Server 1	Server 2	Server 3
2	Pos. 2	Pos. 2	-	-
3	Pos. 2	Pos. 1	Pos. 2	-
4	Pos. 2	Pos. 1	Pos. 1	Pos. 2

3 Mounting and installation [specialist]

3.3 Controller connection FC4.13

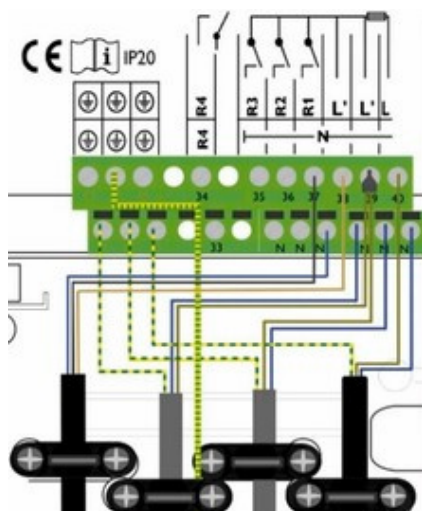
The following illustrations show how to connect the 2-way zone valves (switch valves) electrically to the controller, and how to connect the controllers with each other in order to establish a communication between them.

WARNING



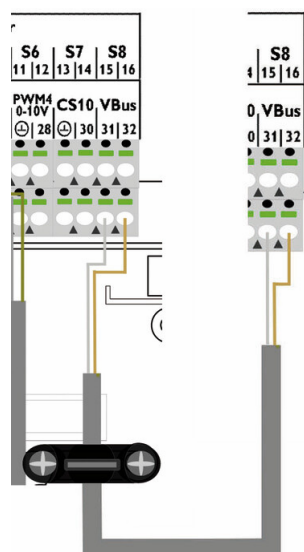
Risk to life and limb due to electric shock!

- ▶ Prior to commencing electrical work on the controller, pull the mains plug!
- ▶ Only after completing all work, plug the mains plug into a socket. This avoids an unintentional start of the motors.



1. Open the front panel of the controller.
2. Connect the 2-way zone valve to the corresponding controller.

Black: R1
Blue: N
Brown: L'



3. Connect all controllers with each other by using the enclosed connecting lines. Observe the polarity of the PWM connection:

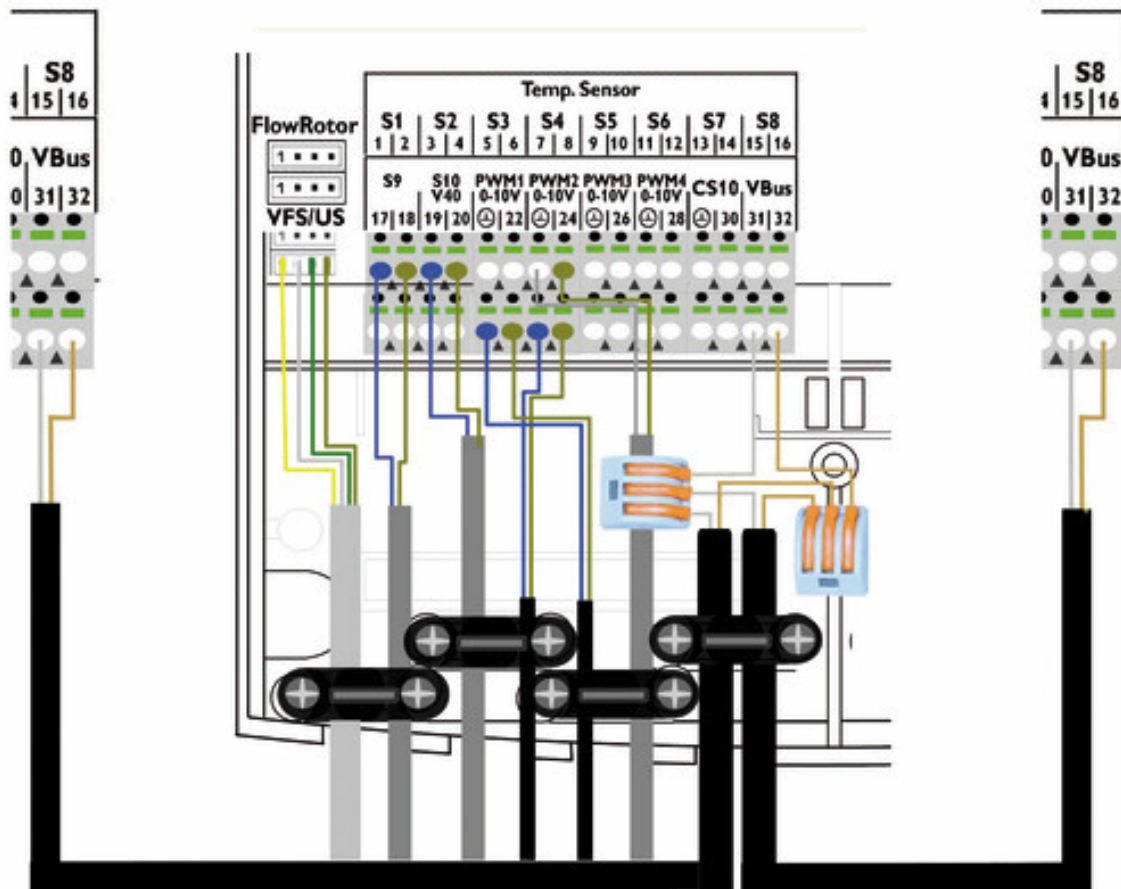
Brown: VBus-
White: VBus+

4. Mount the strain reliefs.
5. Close the front panel of the controller.
6. Set up the power supply of the installation and put the controllers into operation according to the controller instructions.

When installing a three- or four-fold cascade, two VBus lines are brought together at at least one module. To connect the VBus lines of the two adjacent modules to the centre module, it is necessary to duplicate the VBus terminals in the controller.

The WAGO terminals included in the accessory bag can be used for this purpose. Put **VBus+** and **VBus-** respectively, by means of the lines included, on a WAGO terminal and connect both VBus lines.

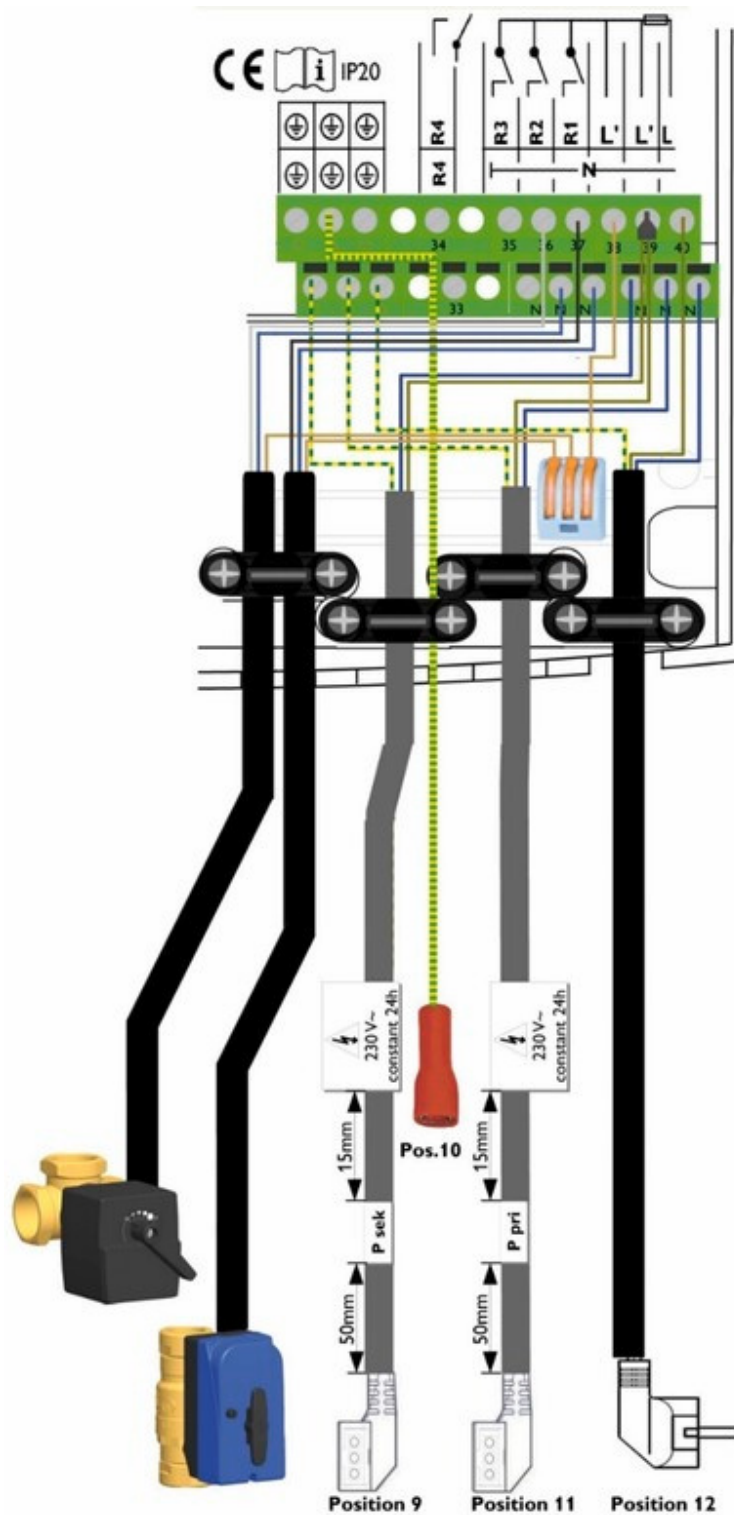
Observe the polarity!



Operation of the controller FC4.13

A detailed description of the commissioning of the controller can be found in the controller instructions.

If not only the switch valve, but also the 3-way valve for stratification is supposed to be connected, double L' by means of a WAGO terminal (see example).



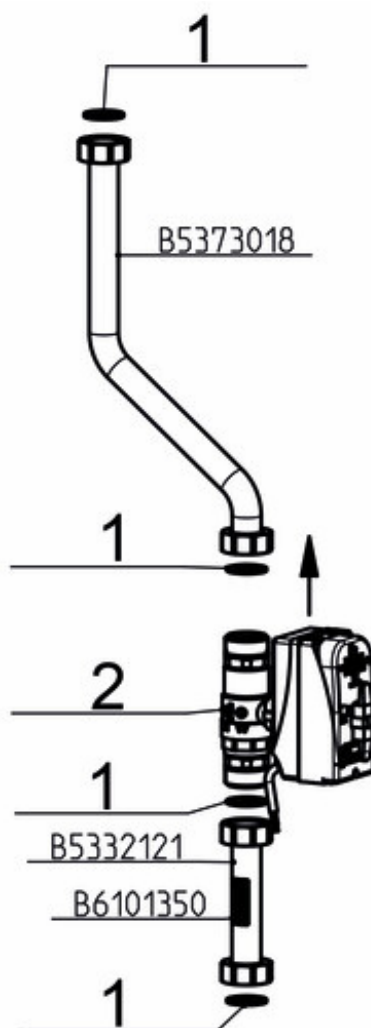
4 Scope of delivery**NOTICE****Serial number**

Complaints and requests/orders of spare parts will only be processed with information on the serial number!

The serial number is placed on the short and straight pipe section.

4 Scope of delivery

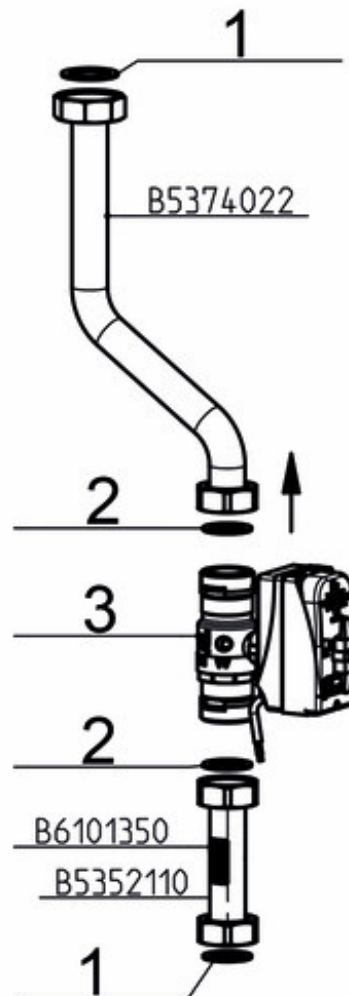
4.1 Spare parts accessory kit FriwaMidi



Item number	Cascade	Number of zone valves
64042622	2-fold	2
64042632	3-fold	3
64042642	4-fold	4

Position	Spare part	Item number
1	Sealing kit, 10 pieces, ½", for thread connection 1"	N00024
2	2-way zone valve DN 20, drinking water, 2 x 1" ext. thread, with actuator 230 V / 50 Hz - 12s/90°	N00022

4.2 Spare parts accessory kit FriwaMaxi

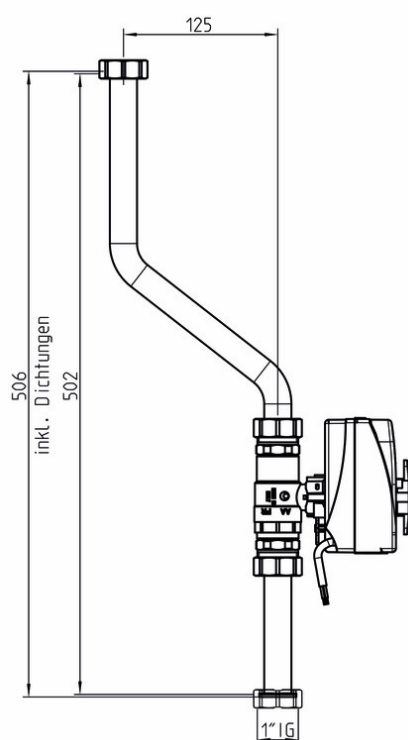


Item number	Cascade	Number of zone valves
64042722	2-fold	2
64042732	3-fold	3
64042742	4-fold	4

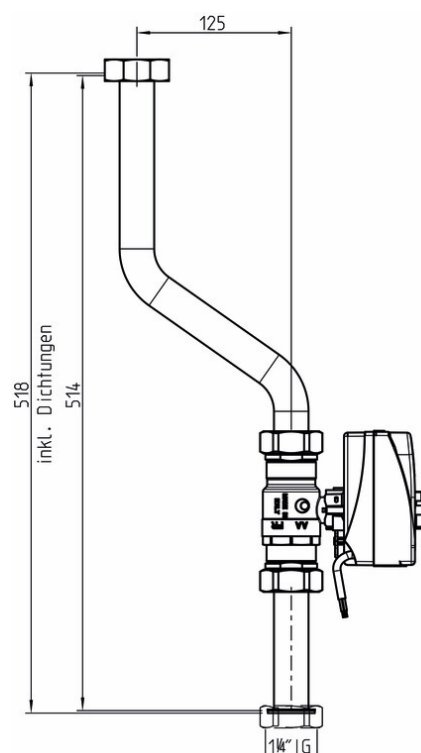
Position	Spare part	Item number
1	Sealing kit, 10 pieces, 1", for thread connection 1½"	N00036
2	Sealing kit, 10 pieces, ¾", for thread connection 1¼"	N00174
3	2-way zone valve DN 25, drinking water, 2 x 1¼" ext. thread, with actuator 230 V / 50 Hz - 12s/90°	N00028

5 Technical data 2-way zone valve

		Pipe set FriwaMidi	Pipe set FriwaMaxi
Dimensions	Total height	506 mm	518 mm
	Pipe connections	1" ext. thread	1¼" ext. thread
Operating data	Degree of protection	IP44 (standard IEC 529)	
	Nominal voltage	230 V AC	
	Nominal pressure	PN 10	
	Max. temp. of medium	110 °C	
	Setting time	12 sec/90°	
Materials	Valve housing	CW617DW	
	Ball	CW617N	
	Valves and fittings	Stainless steel (1.4404)	
	Seals	PTFE G 502, EPDM, Perox, FPM, AFM34	



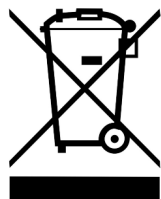
Accessory kit FriwaMidi



Accessory kit FriwaMaxi

6 Disposal

NOTICE



Electrical and electronic devices must not be disposed of in the household waste.

For your return, there are free collection points for electrical appliances and, if necessary, additional points of acceptance for the reuse of the devices in your area.

The addresses can be obtained from your city or communal administration.

If the old electrical or electronic device contains personal data, you are responsible for deleting it before returning the device.

Batteries and rechargeable batteries must be removed prior to the disposal of the product. Depending on the product equipment (partly with optional accessories), single components can also contain batteries and rechargeable batteries.

Please observe the disposal symbols on the components.

Disposal of transport and packaging materials

The packaging materials are made of recyclable materials and can be disposed of with recyclable materials.

7 Commissioning report

System operator		
Location of installation		
Serial numbers		
Valve R1		
Valve R2		
Valve R3		
Valve R4		
Functioning during manual operation mode		
Valve R1	<input type="checkbox"/>	OK
Valve R2	<input type="checkbox"/>	OK
Valve R3	<input type="checkbox"/>	OK (optional)
Valve R4	<input type="checkbox"/>	OK (optional)
Pipeline	Diameter = mm	Length = m
Equipment	<input type="checkbox"/> with circulation line	<input type="checkbox"/> without circulation line
Have all the pipes of the primary and secondary circuit been checked for tightness?	<input type="checkbox"/> checked	
Are all cables properly connected?	<input type="checkbox"/> checked	
Are the controllers set to cascade operation mode?	<input type="checkbox"/> checked	
Installation company	Date, signature	

Item no. 9964042xx2-mub-en

Translation of the original instructions

We reserve the right to make technical changes without notice!

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