3-WAY SWITCHING VALVE
for domestic hot water charging

USV 1" AG
USV 5/4" AG
USV 6/4" IG
Please read first

This operating manual provides important information about the handling of the unit. It is an integral part of the product and must be stored in an accessible location within the immediate vicinity of the unit. It must remain available throughout the entire service life of the unit. It must be handed over to subsequent owners or users of the unit.

In addition to this operating manual, the operating manual for the heating and heat pump regulator and the operating manual for your heat pump must also be available to you.

Read the operating manual before working on or operating the unit. This applies in particular to the chapter on safety. Always follow all instructions completely and without restrictions.

It is possible that this operating manual may contain instructions that seem incomprehensible or unclear. In the event of any questions or if any details are unclear, contact the factory customer service department or the manufacturer’s local partner.

Since this operating manual was written for several different models of the unit, always comply with the parameters for the respective model.

This operating manual is intended only for persons assigned to work on or operate the unit. Treat all constituent parts confidentially. The information contained herein is protected by copyright. No part of this manual may be reproduced, transmitted, copied, stored in electronic data systems or translated into another language, either wholly or in part, without the express written permission of the manufacturer.

Symbols

The following symbols are used in the operating manual. They have the following meaning:

![Information for operators.](image)

![Information or instructions for qualified technicians.](image)

**DANGER!** Indicates a direct impending danger resulting in severe injuries or death.

**WARNING!** Indicates a potentially dangerous situation that could result in serious injuries or death.

**CAUTION!** Indicates a potentially dangerous situation that could result in medium or slight injuries.

**CAUTION.** Indicates a potentially dangerous situation, which could result in property damage.

**NOTE.** Emphasised information.

![Reference to other sections of the operating manual.](image)

![Reference to other instructions of the manufacturer.](image)
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Intended use

The unit may be used only for its designed purpose. This means:

• for switching from heating to domestic hot water charging.

Exclusion of liability

The manufacturer is not liable for losses resulting from any use of the unit for which it is not intended.

The manufacturer’s liability also lapses

• if work is performed on the unit and its components in a manner that does not comply with the terms of this operating manual;

• if work is performed on the unit and its components in an improper manner;

• if work is performed on the unit that is not described in this operating manual, and this work was not expressly approved in writing by the manufacturer;

• if the unit or components in the unit are modified, redesigned or removed without the express written permission of the manufacturer.

Safety

The unit is safe to operate for its intended use. The design and manufacture of the unit conform to current state of the art standards, all relevant DIN/VDE (German Association for Electrical, Electronic &Information Technologies) regulations and all relevant safety regulations.

Every person who performs work on the unit must have read and understood the operating manual prior to starting any work. This also applies if the respective person has already worked with such a unit or a similar unit or has been trained by the manufacturer.

Every person who performs work on the unit must comply with the applicable accident prevention and safety regulations. This applies in particular to the wearing of personal protective equipment.

DANGER!
Risk of fatal injury due to electric current!
All electrical connections must be carried out by qualified electricians only.

Before opening the unit, disconnect the system from the power supply and secure it from being switched back on!

DANGER!
Only qualified technicians (trained heating, cooling, refrigerant and electrical technicians) may perform work on the unit and its components.

Customer Services

For technical information please contact a qualified technician or the manufacturer’s local partner.

Overview “Customer service”.
Warranty/Guarantee

For warranty and guarantee conditions, please refer to the purchase documents.

**NOTE.**
Please contact your dealer about all matters concerning warranties and guarantees.

Disposal

When decommissioning the unit, always comply with applicable laws, directives and standards for recycling.

Scope of delivery

3-way valve with servomotor.

Complete the following first:

1. Inspect the delivery for outwardly visible signs of damage...
2. Check that nothing is missing from the scope of supply. Any defects or incorrect deliveries must be claimed immediately.
Switching valve 1” AG
Installation

The following applies to all work to be done:

**NOTICE**
Always comply with the applicable local accident prevention regulations, statutory regulations, ordinances, guidelines and directives.

**WARNING!**
Only qualified technicians may fit the switching valve.

Proceed as follows:

1. Attach the switching valve so that subsequently the motor is located above the switching valve and domestic hot water outlet (= outlet A) on the side of the motor connection cable...

When doing so insert the spindle of the switching valve in the spindle bushing on the underside of the motor...

2. Carefully attach the motor from above on to the switching valve...

3. Secure the motor to the switching valve using the U-shaped clip on the bottom of the motor...

**CAUTION.**
The motor must not, under any circumstances, be mounted so that it is suspended. The motor must always be fitted above the switching valve.

- A Domestic hot water (DHW) outlet (open when a DHW pump signal is applied)
- B Heating water outlet (open when no power is applied)
- AB Mains pipe or supply pipe

1. Spindle bushing on the underside of the motor
2. Spindle of the switching valve

1. U-shaped clip on the underside of the motor
2. Lug

Subject to technical modification.
UK805189/201109 – Translation of the original instruction manual
Proceed as follows:

1. Disconnect the heat pump and heating and heat pump regulator (wall regulator) from the power supply...

2. As necessary, remove the front panel and then open the electrical switch cabinet of the heat pump or open the housing of the heating and heat pump regulator (wall regulator)...

3. Operating instructions for your heat pump.

4. Carry out the electrical work...

5. Close the electrical switch cabinet and replace the heat pump front panel or the housing of the heating and heat pump regulator (wall regulator)...

6. Reconnect the heat pump and heating and heat pump regulator (wall regulator) to the power supply.

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Subject to technical modification.
UK805189/201109 – Translation of the original instruction manual
USV 1" AG

Bleeding

Proceed as follows:

1. Pull off the U-shaped clip on the motor underside and lift the motor upwards away from the switching valve...

2. Turn the spindle on the switching valve by about 30°...

3. Start the bleed program via the heating and heat pump regulator ...

4. Once the bleed program has completed, turn the spindle of the switching valve back to the start, replace the motor from above on the switching valve and secure using the U-shaped clip.

CAUTION.

Never press the U-shaped clip behind the lug.

In order to be supported securely, the U-shaped clip must bear with both indents against the lug.

Operation and maintenance

The valve unit is maintenance-free

If the power supply is interrupted, the valve cone remains in its current position.

When the valve is disconnected from the power, the valve cone can be manually returned to its central position (this is advantageous for water flow between the heating cycle and the water supply circuits).

Technical Data

Motor-operated 3-way switching valve
Voltage code 1~/N/PE/230V/50Hz
Power consumption 5 VA
IP rating IP 40
Cable connection, 3 core; cable length approx. 3 m
Duration approx. 8 seconds
Maximum differential pressure 1 bar
Maximum operating pressure 10 bar
Maximum operating temperature 5° C – 95° C
Ambient temperature 1° C – 60° C
Connection DN 25 1" AG

Dimensional drawings

DN 25 • Dimensions in mm

Pressure loss curve

Legend:

\( \dot{V} \) Volume flow
\( \Delta p \) Pressure loss
Installation

The following applies to all work to be done:

NOTICE
Always comply with the applicable local accident prevention regulations, statutory regulations, ordinances, guidelines and directives.

WARNING!
Only qualified technicians may fit the switching valve.

Proceed as follows:

1. Attach the switching valve so that subsequently the motor is located above the switching valve and heating water outlet (= outlet B) on the side of the motor connection cable...

2. Check that the switching valve is completely open. If necessary, completely open the switching valve at the adjustment screw with the aid of a screwdriver...

3. Carefully attach the motor from above on to the switching valve...

   The motor must only be fitted if the switching valve is completely open and the adjusting screw on the valve body is in the position “DHW”.

   The motor must not, under any circumstances, be mounted so that it is suspended. The motor must always be fitted above the switching valve.

   NOTICE
   Before the motor is fitted, the adjusting screw on the underside can be manually adjusted using a screwdriver.

Valve position for heating:

Valve setting for DHW, for manual DHW bleeding and for motor installation:

4. Carry out the electrical work.
Switching valve 5/4" AG

Electrical connection work

**DANGER!**
Risk of fatal injury due to electric current!

All electrical work must be carried out by qualified electricians.

**DANGER!**
During installation and while carrying out electrical work, comply with the relevant EN-, VDE (German Association for Electrical, Electronic & Information Technologies) and/or local safety regulations.

Comply with technical connection requirements of the responsible power supply company, if required by the latter!

**DANGER!**
Only make electrical connections according to the specifications of the wiring diagram.

Proceed as follows:

1. Disconnect the heat pump and heating and heat pump regulator (wall regulator) from the power supply...
2. As necessary, remove the front panel and then open the electrical switch cabinet of the heat pump or open the housing of the heating and heat pump regulator (wall regulator)...

Operating instructions for your heat pump.

3. Carry out the electrical work...

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**Bleeding**

Proceed as follows:

1. Lift the motor upwards away from the switching valve...
2. Turn the adjusting screw on the valve body to the position for manual DHW bleeding...
3. Start the bleed program via the heating and heat pump regulator...

Operating manual of the heating and heat pump regulator.

4. Once the bleed program has completed, replace the motor from above on the switching valve.

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**Operation and maintenance**

The valve unit is maintenance-free

If the power supply is interrupted, the valve cone remains in its current position.

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Subject to technical modification.
UK805189/201109 – Translation of the original instruction manual
Technical Data

Motor-operated 3-way switching valve
Voltage code 1~/N/PE/230V/50Hz
Power consumption 4.5 VA
IP rating IP 54
Cable connection, 3 core
Duration 20 – 40 seconds
Maximum differential pressure 10 bar
Maximum operating pressure 16 bar
Maximum operating temperature -10° C – 100° C
Ambient temperature -10° C – 70° C
Connection DN 32 5/4” AG

Dimensional drawings

DN 32 • Dimensions in mm

Pressure loss curve

Legend:
\( \dot{V} \) Volume flow
\( \Delta p \) Pressure loss
Switching valve 6/4” IG

Installation

The following applies to all work to be done:

NOTICE
Always comply with the applicable local accident prevention regulations, statutory regulations, ordinances, guidelines and directives.

WARNING!
Only qualified technicians may fit the switching valve.

Proceed as follows:

1. Attach the switching valve so that subsequently the motor is located above the switching valve...

Before the motor is placed on the switching valve, ensure that the fulcrum pin of the switching valve points as shown, with its indentation in the direction of the heating water outlet...

Attach the motor from above on to the switching valve so that the cable opening for the electrical connection or the cable point as shown in the direction AB...

CAUTION.
The motor must not, under any circumstances, be mounted so that it is suspended. The motor must always be fitted above the switching valve.

Carry out the electrical work.

1 Fulcrum pin indentation on the top side of the switching valve
A Domestic hot water (DHW) outlet
   (open when a DHW pump signal is applied)
B Heating water outlet
   (open when no power is applied)
AB Mains pipe or supply pipe
Electrical connection work

**DANGER!**
Risk of fatal injury due to electric current!
All electrical work must be carried out by qualified electricians.

**DANGER!**
During installation and while carrying out electrical work, comply with the relevant EN-, VDE (German Association for Electrical, Electronic & Information Technologies) and/or local safety regulations.

Comply with technical connection requirements of the responsible power supply company, if required by the latter!

**DANGER!**
Only make electrical connections according to the specifications of the wiring diagram.

Proceed as follows:

1. Disconnect the heat pump and heating and heat pump regulator (wall regulator) from the power supply...
2. As necessary, remove the front panel and then open the electrical switch cabinet of the heat pump or open the housing of the heating and heat pump regulator (wall regulator)...

3. Operating instructions for your heat pump.
4. Open the motor housing on the switching valve...
5. Carry out the electrical work...

**Switching valve 6/4” IG**

4. Close the electrical switch cabinet and replace the heat pump front panel or the housing of the heating and heat pump regulator (wall regulator)...
5. Reconnect the heat pump and heating and heat pump regulator (wall regulator) to the power supply.

**Bleeding**

Proceed as follows:

1. Lift the motor upwards away from the switching valve. To do this press the button on the motor housing cover to uncouple the motor...

2. Using an open-ended spanner, turn the fulcrum pin on the valve body to the position for manual DHW bleeding...

**Diagram:**

- **K** = Terminal strip in the switching valve motor
- **N** = Neutral conductor
- **DHW pump** = From the DHW pump terminal of the heating and heat pump regulator
- **L** = 230V conductor (from the heat pump control)
- **PE** = Protective earth

**Push-button for uncoupling the motor**

**Fulcrum pin indentation on the top side of the switching valve**

**Domestic hot water (DHW) outlet**
Switching valve 6/4” IG

3. Start the bleed program via the heating and heat pump regulator ...

4. Once the bleed program has completed, turn the indentation of the fulcrum pin back towards the heating water outlet and replace the motor from above on to the switching valve.

Operation and maintenance

The valve unit is maintenance-free

If the power supply is interrupted, the valve cone remains in its current position.

If there is no power supply to the motor, it can be lifted off upwards away from the switching valve. To do this press the button on the motor housing cover and uncouple the motor.

The fulcrum pin on the valve body can be manually activated using an open-ended spanner.

Technical Data

Motor-operated 3-way switching valve

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage code</td>
<td>1~/N/PE/230V/50Hz</td>
</tr>
<tr>
<td>Power consumption</td>
<td>3.5 VA</td>
</tr>
<tr>
<td>IP rating</td>
<td>IP 40</td>
</tr>
<tr>
<td>Cable connection, 3 core</td>
<td>60 seconds</td>
</tr>
<tr>
<td>Duration</td>
<td>60 seconds</td>
</tr>
<tr>
<td>Maximum differential pressure</td>
<td>10 bar</td>
</tr>
<tr>
<td>Maximum operating pressure</td>
<td>16 bar</td>
</tr>
<tr>
<td>Maximum operating temperature</td>
<td>-10° C – 100° C</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-10° C – 50° C</td>
</tr>
<tr>
<td>Connection</td>
<td>DN 40 6/4” AG</td>
</tr>
</tbody>
</table>

Dimensional drawings

[Image of dimensional drawings]

Pressure loss curve

[Graph showing pressure loss curve]

Legend:

Δp  Pressure loss

V  Volume flow