

Operation of Pipework Package Unit

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This symbol indicates that this product is not to be disposed of with your household waste, according to the WEEE Directive (2002/96/EC) and your national law. This product should be handed over to a designated collection point, or to an authorised collection site for recycling waste electrical and electronic equipment (EEE). Improper handling of this type of waste could have a possible negative impact on the environment and human health due to potentially hazardous substances that are generally associated with EEE. At the same time, your cooperation in the correct disposal of this product will contribute to the effective usage of natural resources. For more information about where you can drop off your waste equipment for recycling, please contact your local city office, waste authority, approved WEEE scheme or your household waste disposal service.

DESCRIPTION OF PIPEWORK PACKAGE UNIT

Pipework Package Unit PPU is used for the adjustment of thermal power of water heaters, i. e. for the adjustment of thermal medium debit via the heater and respectfully, the temperature of supplied air (in the location of control panel installation where the thermostat is installed). PPU is used with a dedicated air heater, installed into the ventilation equipment for the adjustment of air curtain water heaters etc.

Pipework Package Unit PPU must be used in a dry room where the temperature from +5 °C to +50 °C is maintained. The adjusted thermal medium must be free of dry solids (sand, dirt) or chemical substances as they may harm the mixing unit. No modifications of Pipework Package Unit are allowed because in such case the warranty shall be cancelled.

Prior the installation, the Pipework Package Unit PPU should be transported and stored in original packing. During the transportation, packing protects the Pipework Package Unit against dirt. During the transportation, the product should be protected against mechanical damage, for instance, against impact, falling or vibration. Pipework Package Unit should be stored in a dry room where the temperature from +5 °C to +50 °C is maintained. In case of damage due to improper transportation or storage, the warranty shall not apply.

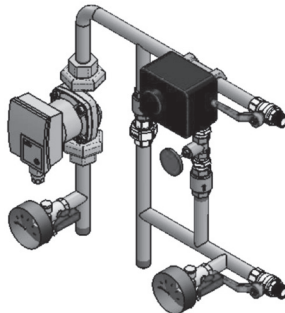
Pipework Package Unit PPU should be installed in a easy accessible location for service and maintenance. If the ambient temperature is higher than 90 °C, thermally-resistant electric wires should be used. Electric wires should not come in contact with the surface of the mixing unit. Pipework Package Unit PPU (pump and electric drive) has no switches. Pipework Package Unit should be connected to the equipment ensuring its control. The pump rotation can be chosen of three levels. They are adjusted with a switch on the pump body.



PPU – hydraulic tests were not performed with Pipework Package Units!

General view

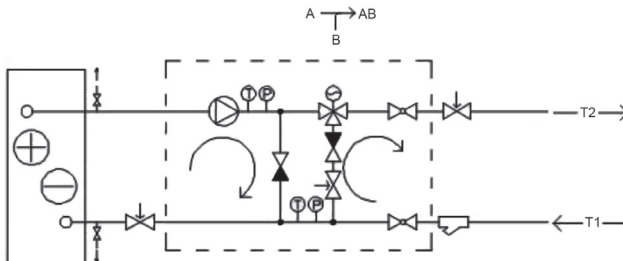
General view of pipework package unit:



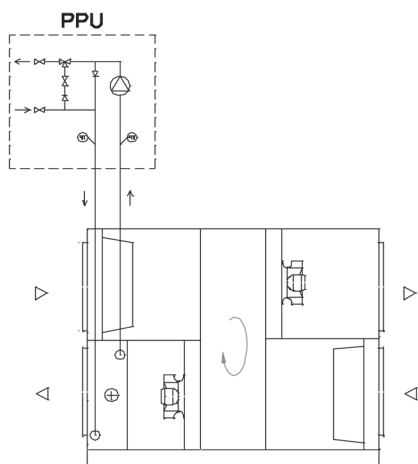
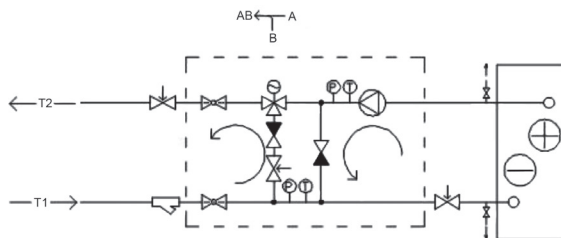
Installation diagram

The installation diagrams are presented below.

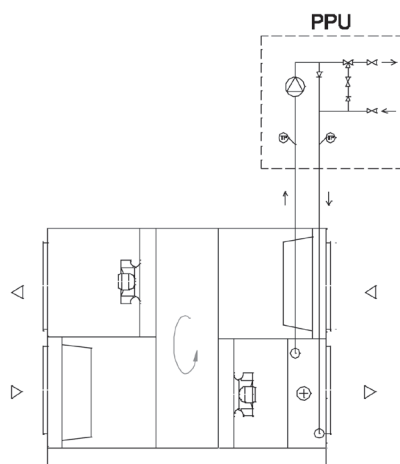
„Right-side“ installation



„Left-side“ installation



„Left-side“ installation



„Right-side“ installation

RECOMMENDATION: It is recommended to use dismantle joints during installation of Pipework Package Unit in case of emergency disassembly.

Encoding

PPU – HW - 3R - 40 - 25,0 - W3

1	2	3	4	5	6
PPU	HW	3R	40	25,0	W3

1. PPU – Pipework Package Unit
2. HW – for heating
CW – for cooling
3. R – „Right-side“ installation (heat transfer medium from right side)
L – „left-side“ installation (heat transfer medium from left side)
3 – 3-way mixing valve is used
4. DN – nominal diameter of pipework
5. Nominal water flow through valve (K_{vs} size)
6. Water pump code

DANFOSS AMB 162 ELECTRICAL ACTUATOR

Description, main data

AMB 162 actuator is used for temperature control in central heating systems together with 3-way and 4-way rotary valves.

The actuators are applicable with:

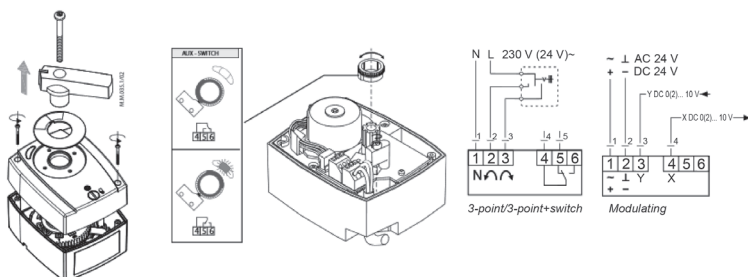
- Controllers with 3-point outlet.
- Controllers with standard voltage or current output.

Main data:

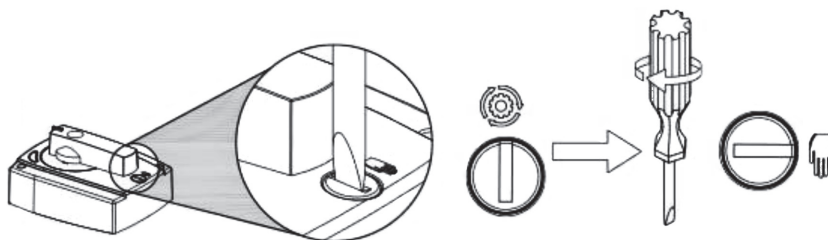
- Supply voltage 24 V a.c. or 230 V a.c.
- 3-point control or voltage signal of 0-10 V or 2-10 V (factory setting: 2-10 V).
- Opportunity to control manually.
- With electrical actuator limit of 90°.



Electrical wiring



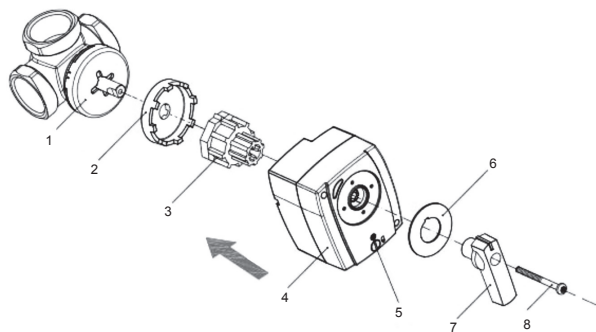
The actuator is wired as the example above depending on actuator type.



The actuator is switched to automatic mode, controlled by electrical signal, if manual mode was switched on. When automatic mode is switched on, the handle should not be turned by hand. This may damage the actuator.

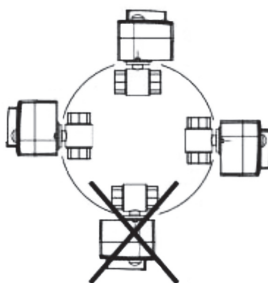
The installation of electrical actuator

Actuator should be assembled as shown in a picture below.



1. Rotary valve
2. Anti-rotation spacer
3. Valve adapter
4. Actuator
5. Manual operating clutch
6. Position indicator
7. Handle
8. Fixing screw

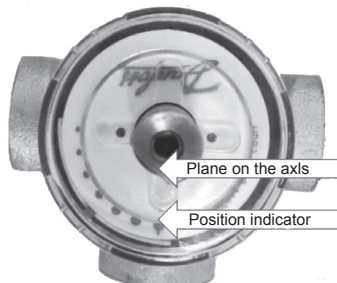
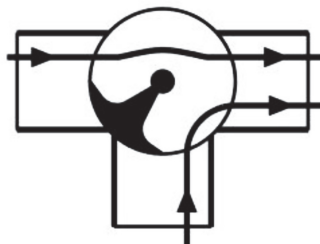
The actuator cannot be mounted upside-down (look at the picture below).



„Right-side“ working mode

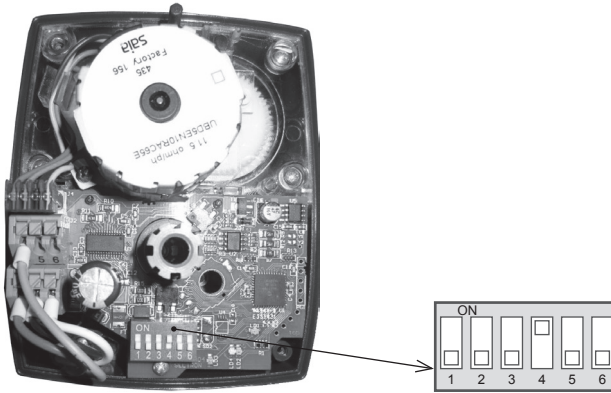
The position of axle before installation

Make sure that valve is in correct position before installation. The valve should be in transitional position. The plane on the axis indicates the position of valve. Position indicator should be also mounted in correct position as shown in the picture.



DIP switch setting

DIP switch should be seen when the cover of actuator is removed. Make sure the switch No. 4 is in ON position.



Mounting the handle

Actuator is finished assembling by putting the handle in position as shown in the picture.

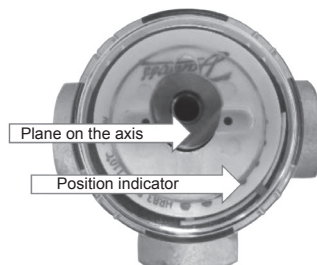
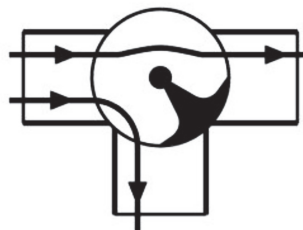
The electrical actuator is ready for use.



„Left-side“ working mode

The position of axle before installation

Make sure that valve is in correct position before installation. The valve should be in transitional position. The plane on the axis indicates the position of valve. Position indicator should be also mounted in correct position as shown in the picture.



DIP switch setting

DIP switch should be seen when the cover of actuator is removed. Make sure the switch No. 4 is in OFF position.



Mounting the handle

Actuator is finished assembling by putting the handle in position as shown in the picture.

The electrical actuator is ready for use.



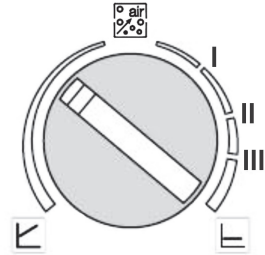
ELECTRICAL WATER PUMP

High-efficiency circulation pump for hot water heating systems with integrated differential pressure control. Control mode and differential pressure (delivery head) are adjustable. The differential pressure is controlled via the pump speed.

Operating knob

- Select control mode.
- Set differential pressure setpoint H.
- Activate the venting function.

The venting function vents the pump automatically.
The heating system is not vented.

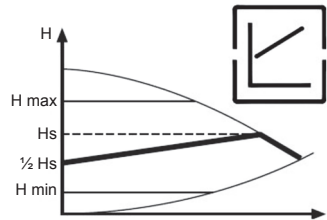


Control modes

Variable differential pressure ($\Delta p-v$)

The differential pressure setpoint H is increased linearly from $\frac{1}{2} H$ to H across the volume flow range. The differential pressure generated by the pump is adjusted to the corresponding differential pressure setpoint.

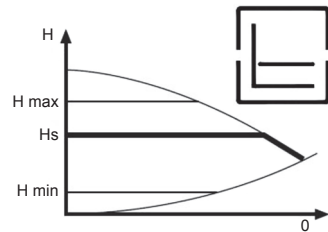
Note: Recommended for heating systems with radiators to reduce the flow noises at the thermostatic valves.



Constant differential pressure ($\Delta p-c$)

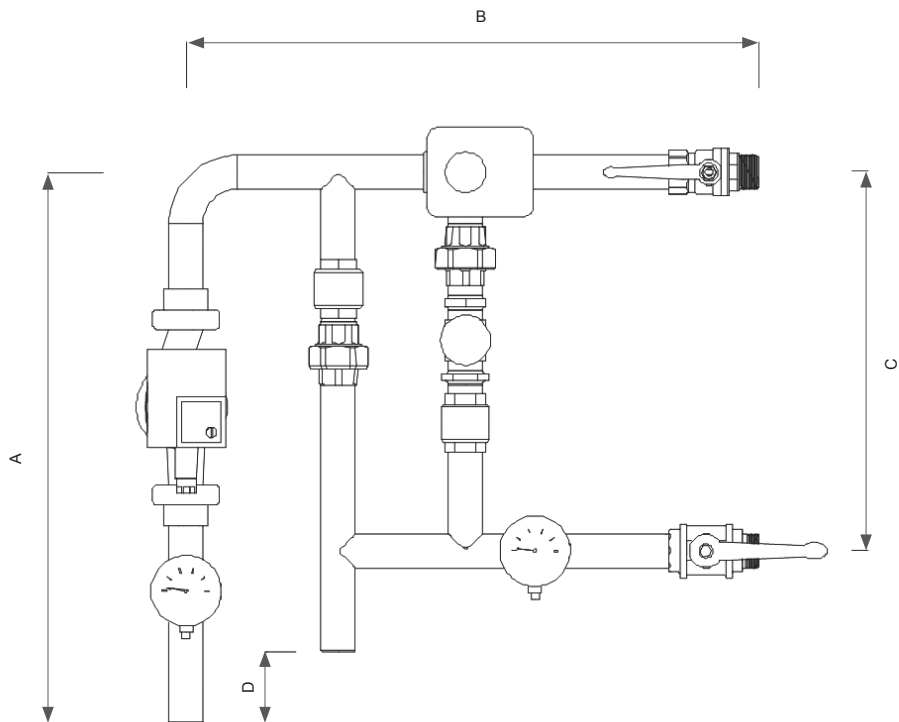
The differential pressure is kept constant at the differential pressure setpoint H.

Note: Recommended for underfloor heating, large-sized pipes as well as all applications without changeable pipe system curve (e.g. storage charge pumps).



Restrictions of PPU

Pipework Package Unit PPU must be used in a dry room where the temperature from +5 °C to +50 °C is maintained. The adjusted thermal medium must be free of old dry solids (sand, dirt) or chemical substances as they may harm the mixing unit. No modifications of Pipework Package Unit are allowed because in such case the warranty shall be cancelled.



Dimensions and mass of Pipework Package Unit.

Dimensions, mm	PPU-0,4-W1	PPU-0,63-W1	PPU-1,0-W2	PPU-1,6-W2	PPU-2,5-W2	PPU-4,0-W2	PPU-6,3-W2	PPU-10,0-W3	PPU-16,0-W3	PPU-25,0-W3	PPU-40,0-W7	
	PPU-0,4-W2	PPU-0,63-W2	PPU-1,0-W3	PPU-1,6-W3	PPU-2,5-W3	PPU-4,0-W3	PPU-6,3-W3	PPU-10,0-W5	PPU-16,0-W5	PPU-25,0-W5	PPU-40,0-W8	
	PPU-0,4-W3	PPU-0,63-W3				PPU-4,0-W4	PPU-6,3-W4	PPU-10,0-W6	PPU-16,0-W6	PPU-25,0-W7	PPU-40,0-W9	
						PPU-4,0-W5	PPU-6,3-W5		PPU-16,0-W7	PPU-25,0-W8	PPU-40,0-ST50	
A	426					510		485	583	594	653	
	498						527		504	537	682	
									564	570	616	
B	499					514		567		601	630	675
C	322					312		376		372	398	429
D	4					98		10		111	96	123
	76									32	40	153
										92	73	87
G (DN)	1/2" (15)					3/4" (20)		1" (25)	1 1/4" (32)	1 1/2" (40)	2" (50)	



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