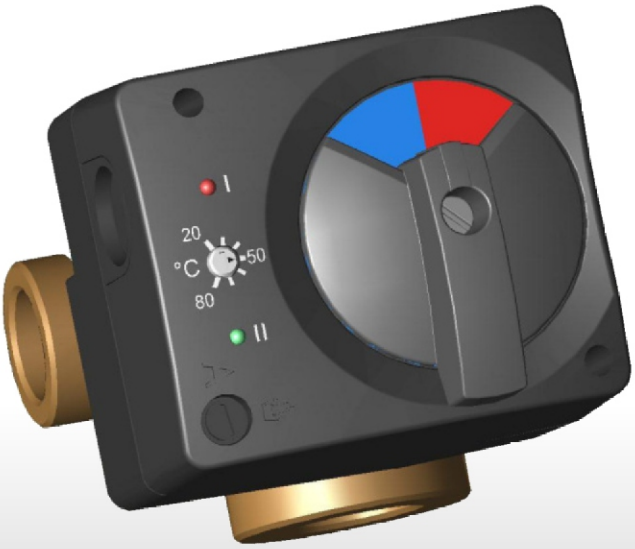
womix
Comfort Controls

Motorregler
(fixed-value controller)
MP 10 CR



OPERATING
AND
COMMISSIONING MANUAL

Attention!
Only begin with mounting or installation work after you have read this operating and commissioning
manual! It is absolutely necessary to make yourself familiar with the complete content.

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1. Product description

The microprocessor controlled fixed-value controller maintains an adjustable temperature setpoint value in a heating system. According to the control deviation, that is monitored via the internal electronic control system, an integrated three- or four-way-mixer is activated directly by an actuator.

1.1. Characteristics and functions

Temperature fixed-value control with switchable temperature limit
Electronic control and actuator in a compact housing
Easy and quick mounting directly on the mixer
Operating status and fault signal via LED
Compact, impact-resistant housing in modern design
Manual emergency operation

1.2. Technical data

Supply voltage	230 V AC 50 Hz, fix connection via two-core power cord with standardised european plug, cord length 2 m
Power consumption	3,5 VA
Sensor input	NTC- temperature sensor, 8,2 k at + 25 °C, fix connected immersion sensor, cord length 1 m, immersion sleeve Ř6 mm x 43 mm
Adjustment setpoint value temperature	+ 20 °C to + 80 °C
Internal temperature limit (fix adjusted)	Minimum temperature limit: + 60 °C or + 70 °C Maximum temperature limit: + 55 °C
Additional functions, adjustable via internal DIPswitch	1: Running direction 2: Minimum temperature limit 3: Maximum temperature limit 4: Mixer blocking protection
Display operating status and fault signal	Via LED´s – red (I) and green (II)
Running time actuator	135 s at a rotation angle of 90 °
Torque actuator	Max. 10 Nm
Position indicator	Bicoloured scale, selectable by turning over: Flow right (VR) and flow left (VL)
Manual emergency operation	Via adjustment knob after displacing the gear
Protection class	II
Protection degree	IP 40 according to DIN EN 60529 (VDE 0470-1)
Insulation class	2
Ambient temperature	0 °C to + 50 °C
Installation	For mixing valves WOMIX
Installation position	Variable
Housing	Plastics, PC (polycarbonate), fiber-glass reinforced
Housing colour	Black
Dimension	93 x 82 x 93 mm
Weight	0,47 kg
Conformity	The fixed-value controller complies with the requirements of the Guidelines on Electromagnetic Conformity (2004/108/EG), the Low Voltage Directive (2006/95/EG), the harmonized standards DIN EN 60730-1 and DIN EN 60730-2-9 and carries the CE mark.

2. Use as intended

The fixed-value controller is intended to activate a mixer. Another application is not permissible and is considered as inappropriate.
The controller may only be installed and operated in:
- dry, not explosive surrounding areas
- closed rooms
- rooms with a temperature between 0 °C and + 50 °C

3. Safety advices

The controller corresponds to the appropriate safety regulations.

Danger to life due to electric shock!
Only trained, competent and authorised persons (electrical technician according to DIN VDE 1000-10 and BGV A3) are allowed to do mounting, electrical installation and commissioning, maintenance and repair work on the controller!
Follow all local regulations of the responsible energy service providers!
Ensure that the power supply is switched off and that the controller cannot be switched on before starting installation or repair work on electrical equipment.
Never work on current conducting parts!

Attention!
Never bring easily inflammable materials near to the controller!
Protect the controller against humidity, coldness, heat, dust and strong sunlight!
The controller is only allowed to be operated in perfect technical condition. Damages, that affect safety or the proper functioning of the controller, have to be removed at once from competent and authorised persons!

4. Warranty and liability

All regulations about warranty and liability are defined in the general terms and conditions of the manufacturer or in the particular contractual relationship. Warranty and liability claims are generally excluded in these cases:
if damages result of inappropriate use of the controller
if the housing had been opened unauthorised, unauthorised structural modifications or adjustments on the controller software had been implemented
if the electrical technician had executed mounting or repair work improperly
if safety advices or instructions of this manual had been ignored

5. Location of the manual

The operating and commissioning manual has to be handed out to the technician before mounting work is started. It has to be stored in readable condition near to the controller in order to ensure quick access if needed.

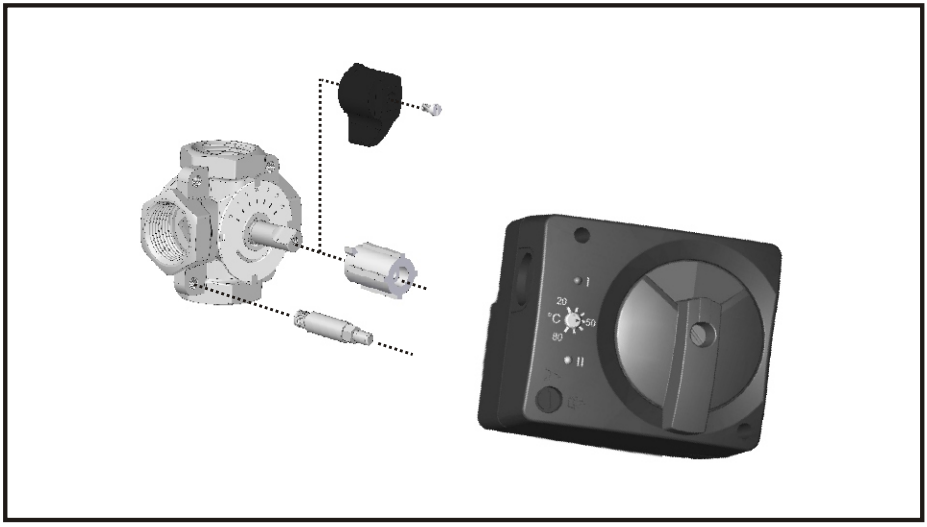
6. Transport and storage

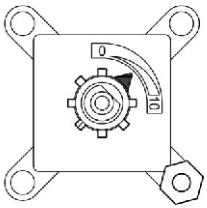
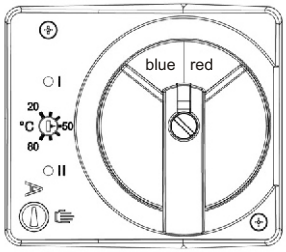
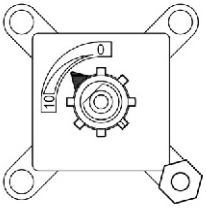
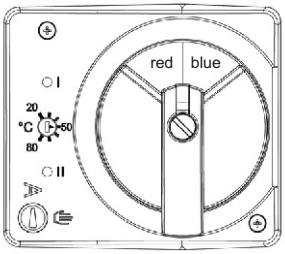
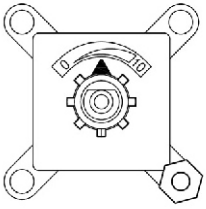
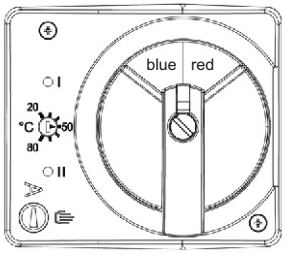
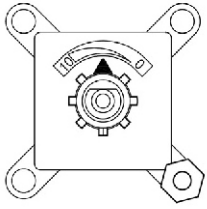
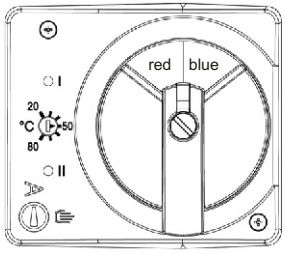
Prove carefully, if there are damages at the packaging or at the controller.
Only transport the controller in the original packaging.
The controller may be damaged, even if it falls down of a low height.
Avoid hits or shocks and extreme temperatures during transport and storage (below 0 °C, above + 50 °C).
The controller may only be storaged in the original packaging and in dry surrounding areas.

7. Mounting of the fixed-value controller

Adjust the mixer manually in central position (45°) of the scale. If there is an adjustment grip, remove it from the mixer axis. Screw in the fixing bolt (torsion locking device) and put the motor coupling on the mixer axis. The needle of the motor coupling has to point to the central position of the mixer.
The colour scale for the position indicator can be adjusted to the direction of the mixer (flow right = VR, flow left = VL). Pull off the adjustment knob from the controller, remove the position indicator and put it in again in the desired position. Push on the adjustment knob again. The position is predefined by raster toothing. Put the fixed-value controller on the coupling. The position indicator has to face upwards. Fix the controller on the mixer axis with the central screw in the adjustment knob. The fixing bolt has to latch in the accordant space on the backside of the controller housing. Switch the gear to ‚manual' ( ). Check, if the coupling can be turned 90° (on the scale from 0 to 10). For electrical operation the controller has to be switched to ‚automatic' (A) again.
The running direction of the actuator can be adjusted via the internal DIP-switch No. 1 (see chapter 9.3)

Schemas see following page!



Mixing valve	Fixed-value controller Central position 45 °	Internal DIP-switch running direction
3-way / flow right		
		1 = ON  Factory setting 
3-way / flow left		
		1 = OFF  
4-way / flow right		
		1 = ON  Factory setting 
4-way / flow left		
		1 = OFF (WYŁĄCZ)  

7.1. Mounting of the sensor (immersion sensor)

While mounting the sensor pay attention to correct fit of the sensor and to good heat conductance.

7.2. Electrical connection

Plug in the controller via two-core power cord and standardised european plug in power socket -230VAC

DANGER

Danger to life due to electric shock!
- Kind of current (alternating current) and voltage have to be conform to the details at the type plate.

7.3. Disassembly and disposal

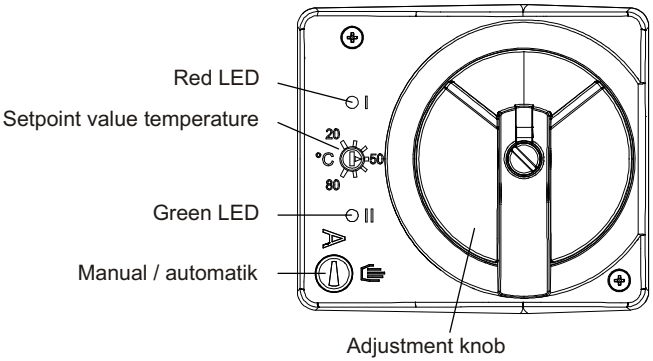
DANGER

Danger to life due to electric shock!
- Switch off the power supply before starting the disassembly!
- Make sure that the controller cannot be switched on!
- Disassemble the controller in reversed order as the mounting!
- Disposal according to the ”act governing the sale, return and environmentally sound disposal of electrical and electronic equipment (electrical and electronic equipment act, or ElektroG)”.

8. Procedure of commissioning

After electrical connection the mixer is closed automatically (homing). This is indicated with the two LED´s flashing alternately. After the end position is achieved, the normal controlling operation is started.

9. Functions and adjustments



The setpoint value temperature can be adjusted with a little screw driver (see chapter 9.1 Adjustment of the setpoint value temperature). The two LED´s indicate the actual operation status or an occurred fault (see chapter 9.2 LED displays and chapter 11. Errors and troubleshooting). With a screw driver the controller can be switched from normal (automatic) operation to manual emergency operation (see chapter 9.7 Manual emergency operation).

9.1. Adjustment of the setpoint value temperature

Adjustment of the setpoint value temperature at the front side of the controller with a screw driver.
Adjustment range: + 20°C to + 80°C

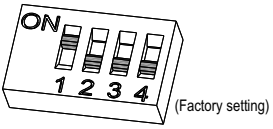
9.2. LED displays (in automatic operation)

The two LED´s (red and green) at the front side of the controller indicate signals from the electronic control to the actuator and indicate faults (see chapter 11. Errors and troubleshooting)

Indications:

LED red	flashes constantly	mixer is opened
LED red	on or flashes slowly	mixer is opening
LED green	flashes constantly	mixer is closed
LED green	on or flashes slowly	mixer is closing

9.3. Internal DIP-switch



(Factory setting)

Attention!
All adjustments of the DIP-switch have to be done carefully by using a tool (e.g. a little screw driver)!

DANGER

Danger to life due to electric shock!
- Switch off the power supply before opening the controller!
- Make sure that the controller cannot be switched on!

Below the housing a 4-pole DIP-switch is located. The DIP-switch has the following functions:

Switch No.	Funktion	ON	OFF	Factory setting
1	Running direction (view at the controller)	Left = closed Right = open	Left = open Right - closed	ON
2 *)	Minimum temperature limit	Minimum temperature + 60 °C or + 70 °C	No minimum temperature limit	OFF
3 *)	Maximum temperature limit	Maximum temperature + 55°C.	No maximum temperature limit	OFF
4	Mixer blocking protection	With blocking protection	No blocking protection	OFF

*) If DIP-switch 2 = ON, DIP-switch 3 is used to adjust the minimum temperature. In this case: DIP-switch 3 = OFF, minimum temperature + 60 °C; DIP-switch 3 = ON, minimum temperature + 70 °C. The maximum temperature limit (+ 55 °C) is deactivated automatically, if DIP-switch 2 = ON! To activate the maximum temperature limit, the switches has to be adjusted as follows: DIP-switch 3 = ON and DIP-switch 2 = OFF (see chapters 9.4. and 9.5.).

Adjust the DIP-switches before mounting the controller on the mixer!
After the adjustment of the DIP-switches mount the housing cover correctly.

9.4. Minimum temperature limit

At the minimum temperature limit the temperature setpoint value is limited to a value, that will not be undercut – independent of the adjusted temperature setpoint value. The minimum temperature limit is activated when DIP-switch 2 is adjusted to ON. The minimum temperature can be adjusted with DIP-switch 3. If DIP-switch 3 is OFF, the minimum temperature is + 60 °C, if it is adjusted to ON the minimum temperature is + 70 °C. The maximum temperature limit is deactivated (example of use: boiler return flow temperature increase)!

9.5. Maximum temperature limit

The temperature of the heating system is controlled to the internal limit in the following case: the maximum temperature limit (DIP-switch No. 3 = ON, No. 2 = OFF) is switched on and the adjusted setpoint value is higher than the preset internal temperature limit (+ 55 °C). The minimum temperature limit is deactivated!
The system is controlled according to the setpoint value adjustment, if the adjusted setpoint value is less than the value of the temperature limit.

9.6. Blocking protection of the mixer

The blocking protection runs, when the mixer is staying in one of both end positions for at least 24 hours. During the blocking protection the mixer is moved to the opposite end position and back. The two LED´s are flashing mutual.

Attention!
The temperature in the heating system can exceed the value of the temperature limit (+ 55 °C), when the mixer blocking protection is activated.

9.7. Manual emergency operation

In case of an electrical power outage or in case of a controller failure, the mixer can be manually adjusted in the desired position. The controller automatically starts the normal operation, when the electrical power returns and if the automatic position is activated (see chapter 8. Procedure of commissioning)

Activation manual position:	With a screw driver switch from position ‚automatic' (A) to position ‚manual' ( ) at the front side of the controller. With the adjustment knob the mixer now can easily be adjusted in the desired position. The LED´s flash after maximum 5 minutes. Additionally the temperature control is switched off and the actuator is stopped.
Activation automatic position:	Turn the adjustment knob to end position LEFT or RIGHT before switching from position ‚manual' (A)to position ‚automatic' ( ). Directly after that, switch from position ‚manual' to position ‚automatic' with a screw driver. The controller automatically starts to adjust the mixer according to the adjusted setpoint value temperature.

10. Maintenance

The controller is maintenance-free. You can occasionally clean it with a soft and dry cleaning cloth.

Attention!
- No humidity may get inside the controller!
- Never use solvent-containing cleaning materials!

11. Errors and troubleshooting

Please check the following points, if your fixed-value controller does not operate successfully:

1. Current supply:
Check, if the power plug is plugged in or check the power supply voltage, if none of the two LED´s flashes, although a control deviation is visible.

2. Possible fault signals of the fixed-value controller:
The two LED´s on the front side of the controller can indicate different faults. The following fault signals can occur:

2a. Sensors and sensor leads:

LED red	on	Sensor lead disconnected
LED green	flashes	
LED red	flashes	Sensor lead hot-wired
LED green	on	

2b. Fault:

LED red	flashes	Internal fault of the controller or mixer blocked
LED green	flashes	

2c. Exceeding temperature limit:

LED red	on	Exceeded temperature limit
LED green	on	

The mixer is closed, when the temperature limit in heating operation (+ 55 °C) is exceeded. The controller automatically starts to run in normal operation, when the fault is eliminated. Replace the controller, if the error still exists after checking, troubleshooting and, if needed, repair of the controller by the electrical technician.

DANGER

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- Only trained, competent and authorised persons (electrical technician according to DIN VDE 1000-10 and BGV A3) are allowed to do mounting, electrical installation and commissioning, maintenance and repair work on the controller!
- Follow all local regulations of the responsible energy service providers!
- Ensure that the power supply is switched off and that the controller cannot be switched on before starting installation or repair work on electrical equipment.
- Never work on current conducting parts!

Attention!
After an electrical power outage the controller continues to run automatically. All stored values and adjustments are saved!

Notes:

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