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## WITA Fixed Setpoint Controller SM WR FR



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INSTALLATION GUIDE SETPOINT  
VALUE CONTROLLER

PAGE 20-36

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WITA Fixed Setpoint Controller SM WR FR

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## WITA Fixed Setpoint Controller SM WR FR

# EC Declaration of Conformity

**Name of the issuer:** WITA-Wilhelm Taake GmbH  
Pumpen-, Armaturen- und Regeltechnik  
Böllingshöfen 85  
D-32549 Bad Oeynhausen

**Subject of the declaration:** Fixed Setpoint Controller

**Type:** SM WR FR

**Design:** SM W 05 FR  
SM W 10 FR

We declare with sole responsibility that the products specified above, to which this EC Declaration of Conformity refers, fulfil the following standards and guidelines:

### Electromagnetic Compatibility Directive 2014/30/EU

EN 55014-1 : 2006 + A1 : 2009 + A2 : 2011

EN 55014-2 : 1997 + A1 : 2001 + A2 : 2008

EN 61000-3-2 : 2014

EN 61000-3-3 : 2013

### Low Voltage Guideline 2014/35/EU

EN 60730-1:2017-05

EN 60730-2-14 : 2009-06

EN 60335-1 : A11:2014

### RoHS-Richtlinie

RoHS 2011/65/EU

EN 63000:2019-05

This declaration is submitted for and on behalf of the manufacturer by:

Frank Kerstan  
Management

Bad Oeynhausen, 06.12.2019



## 2 Safety Instructions

### 2.1 General

These installation and operating instructions are a part of the product, and contain basic information that must be observed during installation, operation and maintenance. For this reason, the installer and specialist personnel or operators must read these instructions prior to set-up.

Please observe both the general safety instructions listed under section 2 and the special safety instructions detailed in the other sections.

A copy of the EC Declaration of Conformity is provided with these instructions. This declaration shall be deemed void in the event of a modification that has not been agreed with us.

### 2.2 Identification of notes in the operating instructions



**General hazard symbol**

**Warning! Danger of personal injury!**

**Observe the relevant accident prevention regulations.**



**Warning! Danger from electrical voltage! Prevent hazards arising from electrical energy. Observe the instructions in local or general regulations (e.g. IEC, VDE, etc.), and those of the local energy supplier.**

## WITA Fixed Setpoint Controller SM WR FR

**Note**

**This symbol indicates useful information for handling the product. It indicates potential difficulties and aims to ensure safe operation.**

Signs attached directly on the product, such as:

- direction of rotation arrow
- type plate
- identification of connections must be strictly observed and kept in an easily legible state.

### 2.3 Personnel qualification

The personnel used for mounting, operation and maintenance must have relevant qualifications. Areas of responsibility and monitoring of personnel must be guaranteed by the owner/operator. If personnel do not have the necessary know-how, they must be trained or instructed accordingly.



This device can be used by **children** at or above the age of 8 years, as well as by persons with reduced physical, sensory or mental capabilities, or who lack experience and knowledge, if they are supervised or have been instructed concerning the safe use of the device and if they understand the hazards arising from its use. **Children** may not play with the device.

Cleaning and **maintenance operations** may not be carried out by **children** without supervision.



## 2.4 Danger of not observing safety instructions

Not observing the safety information can endanger persons, the environment and the system. Not observing the safety instructions shall result in the loss of any and all claims to warranty.

Potential dangers include:

- Hazards to persons through electrical and mechanical effects.
- Failure of important system functions.
- Hazard to the environment from escaping fluids resulting from a leak.
- Failure of prescribed repair and maintenance work.

## 2.5 Safety-conscious working

Observe the safety instructions detailed in this manual, along with the current national accident prevention regulations. Should the system operator also have their own internal regulations, these must also be observed.

## 2.6 Safety instructions for the operator

- Any existing touch guard protecting moving parts may be neither removed nor shut down while the system is in operation.
- In the event of a fluid leak, any fluids must be collected or diverted in a way that prevents hazards to persons and the environment from arising.
- Prevent hazards arising from electrical energy.

## WITA Fixed Setpoint Controller SM WR FR

- Observe the instructions in local or general regulations (e.g. IEC, VDE, etc.), and those of the local energy supplier.
- In the event of hazards arising from the system due to contact with hot or cold parts, these parts must be fitted with a touch guard.
- Keep flammable substances away from the product.



### 2.7 Safety instructions for installation and maintenance work

The system operator is responsible for ensuring that all installation and maintenance work is carried out by qualified personnel. These persons must also have familiarised themselves in advance with the product using the operating instructions. Conducting work on the pump is only permitted when the system is shut down.

Ensure that the device is securely disconnected from the power supply. Disconnect the device plug to achieve this. Prescribed instructions for shutting down the device can be found in the operating instructions. All protective mechanisms, such as a touch guard, must be correctly reattached after work.

### 2.8 Unauthorised conversion and production of spare parts

Modification or conversion of the product is only permitted after prior consultation with the manufacturer. Only use original spare parts for repairs. Only use accessories that have been approved by the manufacturer. The manufacturer shall bear no



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liability for any consequences resulting from the use of other parts.

## 2.9 Unpermitted operation

If the pump is disconnected from the power supply, wait at least 1 minute before reactivating. Otherwise, the pump's in-rush current limit has no effect, which can lead to functional errors or damage to any connected heating controller. The pump's operational safety can only be ensured if it is used as intended. Please observe section 4 of these operating instructions here. Ensure compliance with the limit values detailed in the technical data.



## 3 Transport and Storage

After receiving the product, inspect it immediately for damage caused in transport. Should you detect any transport damage, assert a claim with the haulier.

**Incorrect transport and storage can lead to personal injury or damage to the product.**

- **Protect the product against frost, moisture and damage during transport and storage.**
- **Only carry the pump by the pump housing, and never by the connection cable or terminal box.**
- **If the packaging weakens due to moisture, this can lead to the pump falling out and causing severe injury.**





## WITA Fixed Setpoint Controller SM WR FR

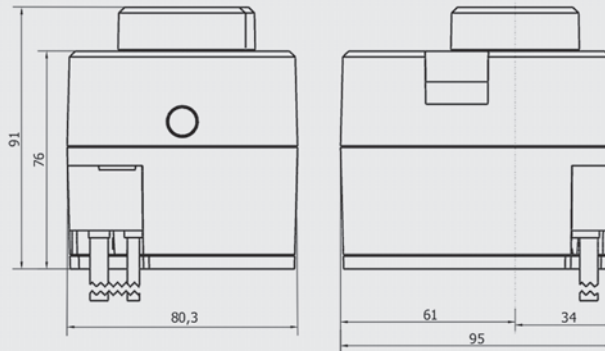
### 4 Intended Use

The WITA fixed setpoint controller SM WR FR is a constant or fixed setpoint temperature controller for heating or cooling systems. His field of application is, the return flow, the control of surface heating, or where constant temperatures are needed.



### 5 Technical data for the WITA fixed setpoint controller

#### 5.1 Dimensions



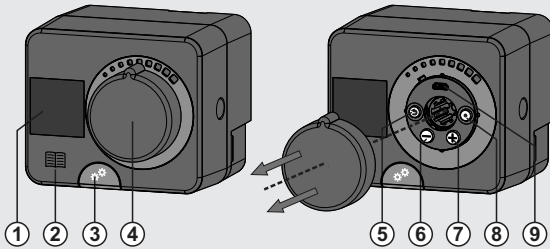
#### 5.2 Technical specifications

	SM WR 5FR	SM WR 10FR
torque	5 Nm	10 Nm
Rotation angle	90 °	
Rotation Speed	2 min / 90°	
Operating mode	3-Point, PDI	
Supply voltage	230 VAC , 50Hz	
Power consumption	max. 5W	
Power consumption during standby	max. 0,5W	
Temperature range	0 -50 °C	
Protection	I to EN 60730 -1	
Protection class	IP 42 to EN60529	
Dimensions (w x l x h)	95x80x92 mm	
Weight	ca. 900 g	



## WITA Fixed Setpoint Controller SM WR FR

### 5.3 Operating elements of the fixed value controller SM WR FR



1. Graphic display
2. Button (Help / User Guide).
3. Button for manual operation.
4. Removable button for manual operation.
5. Button (return)
6. Button (Go to the left or increase in value)
7. Button (Go to the right or increase in value)
8. Button )
9. USB connection for PC

Pressing selection buttons (2) or setting buttons (5, 6, 7, and 8) is carried out when pressed an acoustic signal.

### 5.4 Graphic display

The base of the display of the fixed setpoint controller are

- the operating mode
- the actual and target temperature
- if necessary, also the hydraulic diagram displayed with symbols and current values.

**Displayed symbols:**

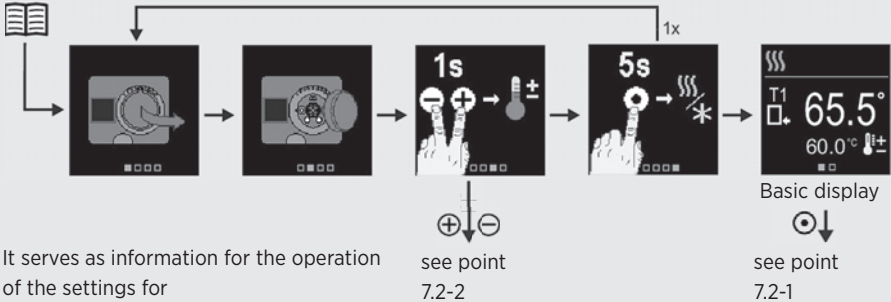
	Heating
	Cooling
	Valve direction of rotation counterclockwise
	Valve direction of rotation clockwise
	Return temperature
	Flow temperature
	Transmission defect
	Target temperature
	Error

	Operating mode
	Measured temperature
	Requested temperature
	Operating mode
	Measured- and requested temperature
	Hydraulic scheme

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5.5 User Guide Button (2) Help / User Guide

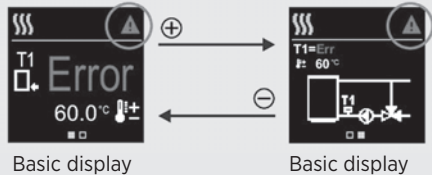


It serves as information for the operation of the settings for

- set temperature adjustment
- Selection heating / cooling

see point 7.2-2

5.6 Ads in case of failure

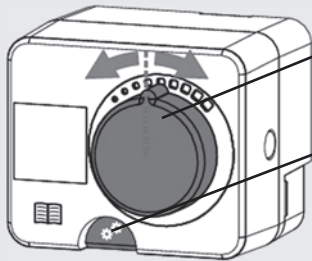




## WITA Fixed Setpoint Controller SM WR FR

### 5.7 Manual mode

In the event of a fault, the fixed setpoint controller has the option of being switched from automatic mode to manual mode, so that emergency operation is possible.



Adjustment knob (4) for manual operation

Button (3) for manual operation

- Press manual operation
- Press again for automatic operation. If the button is pressed for manual operation, it will be shown graphically in the display!

#### Note

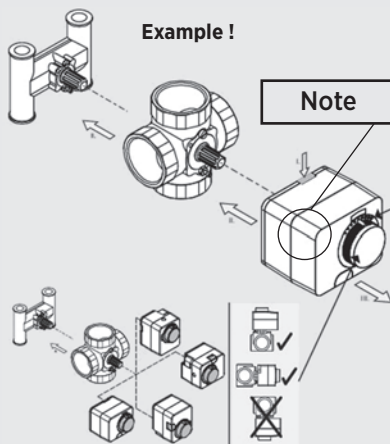


Basic display

## 6 MAssembly of the controller SM WR FR on heating mixer

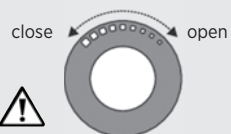
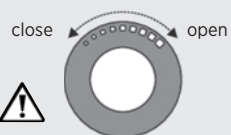
6.1 Mounting the fixed setpoint controller SM WR FR to different mixers can only be made with manufacturer-specific mounting kits.

When selecting the drive, please observe because of the torque the data sheet of the mixer while mounting with manufacturer-specific mounting kits, the enclosed installation instructions has to be observed!



The drive is equipped with a special mounting flange. By pressing the assembly / disassembly button, a simple, tool-free installation of the fixed-value controller on the mixer or the valve or disassembly is possible.

Scale for displaying the mixer position



Einbaulage des Reglers Die Anzeige des Displays passt sich stets der Einbaulage des Festwertreglers auf dem Mischer an

## WITA Fixed Setpoint Controller SM WR FR

### 6.2 Electrical installation

Due to the preassembled main connection cable and the preassembled temperature sensor the SM WR FR is immediately ready for operation.

**Note**

The temperature sensor was installed for flow temperature control at the flow line of the heating or cooling circuit. For the return temperature control the sensor is installed at the return of the boiler.

## 7 Safety instructions before and for commissioning

7.1 In the case of visible damage of the package or the product is it not to use.

The installation of a damaged product can be life threatening!



Observe the correct opening direction of the mixer or valve for controller settings.

Turning directions can carry out to high or too low temperatures in the system.

Minimum and maximum setpoint temperatures must be set correctly. Incorrect selected limits may cause undesired temperature settings and – consequently - unwanted operation which may damage the system. Every system, in which the controller is integrated, must have independent system protection for too low or too high temperatures.

The controller has no protection function if the temperature in the system are too low or too high.

7.2 Selection and setting of the applications, set temperature and mixer (valve) direction of rotation.

The selection of the settings "application", "setting temperature" or "direction of rotation" can be preset or carried out during commissioning.

#### 7.2.1 Selection of the heating

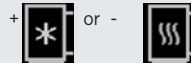


Basic display

5s



The setting will be done by the the buttons



selected and confirmed with key.

#### or cooling application



Heating



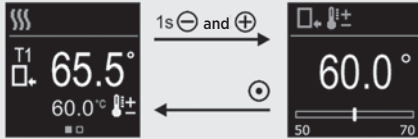
Cooling

After confirming, the controller continues working with the changed setting!



## WITA Fixed Setpoint Controller SM WR FR

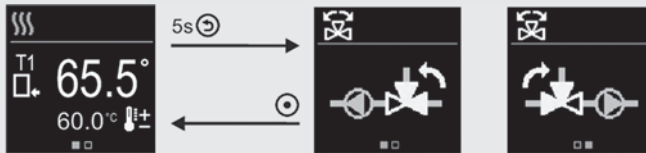
### 7.2.2 Selection and setting of the set point temperature



Basic display

The adjustment can be done by the buttons  $\oplus$  and  $\ominus$ .  $1^\circ$  increments and confirmed with the key  $\odot$ . The change will be immediately shown in the display and the controller works with the new setting.

### 7.2.3 Selection and adjustment of the mixer (valve) direction of rotation



Basic display

Open clockwise

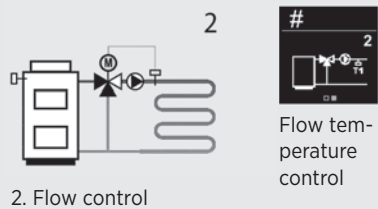
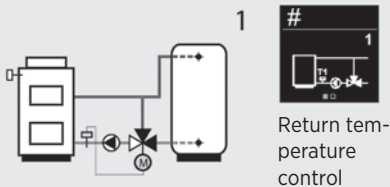
Open counter clockwise

The setting can be adjusted with the  $\oplus$  and  $\ominus$  keys and confirmed with the key  $\odot$ .

## 7.3 Selection of hydraulic scheme and setting of minimum, setting and maximum temperature

The selection for the settings of the "hydraulic diagram" and the "min. and max. Temperatures" can only be made during commissioning in the mode Controller commissioning..

### 7.3.1 Selection of hydraulic scheme



Flow temperature control

## WITA Fixed Setpoint Controller SM WR FR

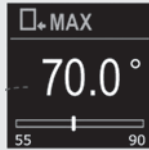
### 7.3.2 Selection and adjustment of the minimum, maximum and set point temperatures for the application



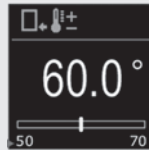
Heat.



min.  
temperature




max.  
temperature



setting  
temperature

Setting range of temperatures  
for min. temperature =  
10 ° - 70 ° setting temperature =  
min. temp. --- max. temp.  
max. temperature =  
set point + 5 ° - 90 °

The setting range for the value of the minimum temperature is = 10 ° to 70 °, the setting range for the value of the maximum temperature is the setting temperature plus 5 ° to 90 °. For the setting temperature value, the range is selectable between the minimum-temperature-maximum temperatures. The possible setting range is shown in the respective display in the lower  scale.

#### Factory setting when heating as flow control

Minimum - temperature 20 °, maximum - temperature 40 °, nominal temperature 30 °

#### Factory setting for heating as return high maintenance

Minimum - temperature 50 °, maximum - temperature 70 °, setting temperature 60!

The settings for cooling mode are not processed in heating mode!



## WITA Fixed Setpoint Controller SM WR FR

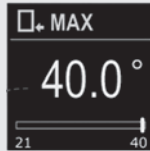
### 7.3.3 Selection and adjustment of the minimum, maximum and set point temperatures for the application



Cool.



Min. Soll-  
Temperatur




Max. Soll-  
Temperatur



setting  
temperature

Setting range of temperatures for min. temperature = 5 ° - 30 °  
 setting temperature = min. temp. --- max. temp.  
 max. temperature = set point 10 ° - 40 °

The setting range for the value of the minimum temperature is = 5 ° - to 70 °, the setting range for the value of the maximum temperature is the setting temperature plus 10 ° to -40 °. For the setting temperature value, the range is selectable between the minimum-temperature-maximum temperatures. The possible setting range is shown in the respective display in the lower  scale.

#### Factory setting when cooling as flow control

Minimum - temperature 5 °, maximum - temperature 40 °, nominal temperature 24 °

#### Factory setting for cooling as return high maintenance

Minimum - temperature 16 °, maximum - temperature 40 °, setting temperature 60!

The settings for cooling mode are not processed in heating mode!



## WITA Fixed Setpoint Controller SM WR FR

## 8 Commissioning of the WITA Fixed Setpoint Controller SM WR FR

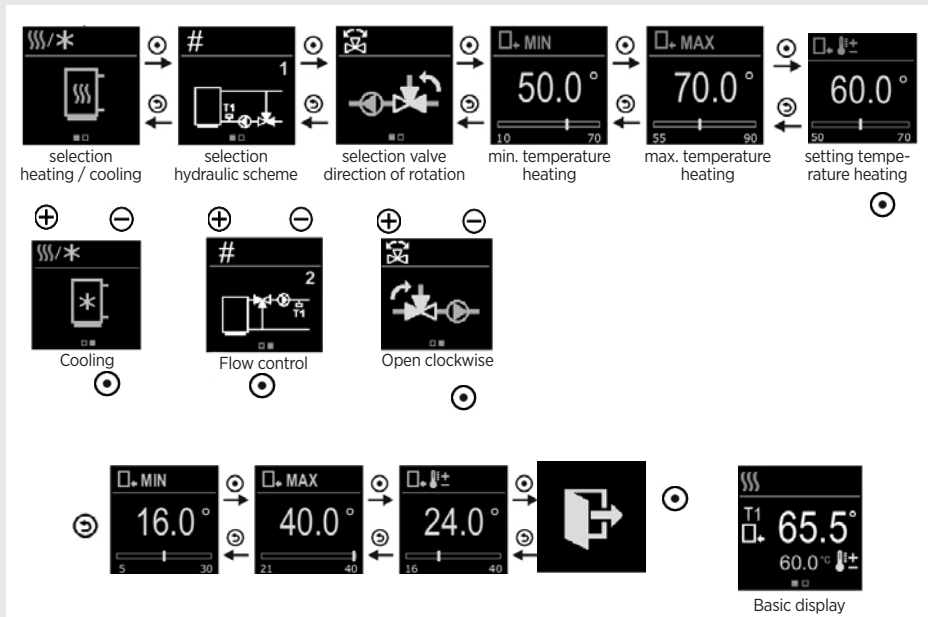
When the controller is connected to the mains for the first time, the display shows the type of the controller, the program version and the LOGO are displayed.

The display then changes to the base display. The base display shows at the first Commissioning the factory setting, then the last set values and the Settings.

To make new settings with the controller the hand adjustment knob must be disassembled, so that the adjustment buttons are accessible.

By simultaneously pressing the buttons (5s).

If the display changes to selection mode, it can be adapted to the existing system (see procedure)



Mit Confirmation of the display will save the settings.



## WITA Fixed Setpoint Controller SM WR FR

### 9 Sensor

The temperature sensor is preassembled on the fixed setpoint value controller with flow temperature control, it is installed on the flow line of the heating circuit. In the return temperature control on the boiler return.

The recommended installation location is 0.5 m behind the heating pump. Clean the heating pipe well during installation Apply thermal grease and temperature sensor, alternatively the temperature sensor can also be used as an immersion sensor

**Note**



#### 9.1 Sensor resistance values.

Temperature [°C]	Resistance [W]	Temperature [°C]	Resistance [W]	Temperature [°C]	Resistance [W]	Temperature [°C]	Resistance [W]
-20	922	35	1136	90	1347	145	1555
-15	941	40	1155	95	1366	150	1573
-10	961	45	1175	100	1385	155	1592
-5	980	50	1194	105	1404	160	1611
0	1000	55	1213	110	1423	165	1629
5	1020	60	1232	115	1442	170	1648
10	1039	65	1252	120	1461	175	1666
15	1058	70	1271	125	1480	180	1685
20	1078	75	1290	130	1498	185	1703
25	1097	80	1309	135	1415	190	1722
30	1117	85	1328	140	1536	195	1740



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Irrtum und technische Änderungen vorbehalten.