

# OPERATING MANUAL

## Multi-Purpose Heater

WD310 / WD320



**WIGGENS**  
THE MAGIC MOTION

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## Congratulations!

You have made an excellent choice.

WIGGENS thanks you for the trust you have placed in us.

This operating manual has been designed to help you gain an understanding of the operation and possible applications of our instruments. For optimal utilization of all functions, we recommend that you thoroughly study this manual prior to beginning operation.

## Unpacking and Inspecting

Please unpack the device carefully. Check that the package is right-side-up and then open it. Check that model of the product is one that you ordered. Check that there is no damage. If there is any damage, file a damage claim with the carrier. In the case of any damage a damage report should be requested immediately. These instructions must be followed fully for us to guarantee our full support of your claim for protecting against loss from concealed damage. The form required for filing such a claim will be provided by the carrier.

Changes without prior notification reserved

**Important:** keep operating manual for future use

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## 1. Intended Use

The WD310/WD320 Multi-Purpose Heater is a heating apparatus with small tank fitting different heating blocks. It can also be used as a small water bath. The WD310/WD320 uses PID temperature control technology for accurate and reliable results and is suitable for complicated temperature control requirements. The LED screen can display both the set and actual temperature and the value setting is easily done via a convenient on-touch control board. The Multi-Purpose Heater features a timer function for automatic heating of up to 100 hours and an alarm signal and automatic stop function in case of over temperature situations. A PT100 temperature sensor can be connected in order to provide direct and more precise control of the actual temperature.

## 2. Operator Responsibility

### Use

- For heating liquids.

### Range of use

- Laboratories
- Schools
- Pharmacies
- Universities

This device is suitable for use in all areas except:

- Residential areas
- Areas that are connected directly to a low-voltage supply network that also supplies residential areas.

The safety of the user cannot be guaranteed

-if the appliance is operated with accessories that are not supplied or recommended by the manufacturer or if the appliance is operated improperly contrary to the manufacturer's specifications.

The products of WIGGENS ensure safe operation when installed, operated, and maintained according to common safety regulations. This section explains the potential dangers that may arise when operating the instrument and also specifies the most important safety precautions to preclude these dangers as far as possible.

- The operator is responsible for the qualification of the personnel operating the instrument.
- The personnel operating the instrument should be regularly instructed about the dangers involved with their job activities as well as measures to avert these dangers.
- Make sure all persons tasked with operating, installing, and maintaining the instrument have read and understand the safety information and operating instructions.
- When using hazardous materials or materials that could become hazardous, the instrument may be operated only by persons who are absolutely familiar with these materials and the instrument. These persons must be fully aware of possible risks.
- Only qualified personnel are authorized to perform configuration, installation, maintenance and repairs of the instrument.
- Routine operation can also be carried out by untrained personnel who should however be instructed by trained personnel.

If you have any questions concerning the operation of your instrument or the information in this manual, please contact us!

## 2.1. Disposal



At the end of its service life the instrument is to be disposed of in accordance with the local regulations specified for the disposal of electronic industry waste in an environmentally friendly manner.

## 2.2. CE Conformity



The products described in the operating instructions conform to the requirements of the following European guidelines:

Low voltage regulations with respect to legal harmonization of the member countries concerning electric devices for use within certain voltage limits.

EMC guideline with respect to legal harmonization of the member countries concerning electromagnetic compatibility.

<b>APPROVALS</b>	EN61326-1:2013,2014/30/EU
European	EN61010-1:2010,2014/35/EU
	EN50581:2012,2011/65/EU

## 2.3. Technical Specifications

Name	WD310	WD320
Display Mode	LED	LED
Set Temperature Range (°C)	40-150 (with PT-100 sensor) 50-150 (without PT-100 sensor)	
Temperature Stability	±0.1°C	±0.1°C
Temperature Accuracy	±0.1°C	±0.1°C
Setting Time (min)	1~9959 / off	1~9959 / off
Max. Block No.	1	2
Electrical Output From Power Supply To Instrument	220V AC, 50Hz, 1A	220V AC, 50Hz, 2A
Outer Dimension (W×L×H in mm)	200×270×80	200×270×80
Heating Block Dimensions (W×L×H in mm)	79×104×50	79×104×50
Order No.	179310	179320

All measurements have been carried out at the stated voltage, frequency, and an ambient temperature of 25°C.

Technical changes without prior notification reserved.






WIGGENS Order Numbers consist of the Basic Order Number (BON) and the Order Number Addition (ONA) which explains different characteristics of the product that can vary from country to country. Order Numbers as stated on the product label and box label are stated as Full Order Numbers (FON), consisting of the BON followed by the ONA. For a full explanation of the ONA of your product, please ask your local WIGGENS support or refer to the Order Number Guide in the *WIGGENS* General Catalog.

## 3. Safety Instructions

### 3.1. Explanation of Safety Notes

In addition to the safety warnings listed, warnings are posted throughout the operating manual. These warnings are designated by an exclamation mark inside an equilateral triangle. "Warning of a dangerous situation (Attention! Please follow the documentation)."




Symbol	Additional term / Description
<b>Warning signs</b> 	The danger is classified using a signal word. Read and follow these important instructions for averting dangers.
	<b>Warning!</b> Describes a <b>possibly</b> highly dangerous situation. If these instructions are not followed, serious injury and danger to life could result.
	<b>Caution!</b> Describes a possibly dangerous situation. If this is not avoided, slight or minor injuries could result. A warning of possible property damage may also be contained in the text.
	<b>Notice!</b> Describes a possibly harmful situation. If this is not avoided, the product or anything in its surroundings can be damaged.
	<b>Note!</b> Draws attention to something special.
	<b>Important!</b> Indicates usage tips and other useful information.




## 3.2. For Your Protection

Follow the general safety recommendations to prevent damage to persons or property.

Further, the valid safety instructions for working places must be followed.

- Make sure you read and understand all instructions and safety precautions listed in this manual before installing or operating your instrument.
- Keep the operation instructions in a place where they can be accessed by everyone.
- Make sure the product is checked for proper condition regularly (depending on the conditions of use). Regularly check (at least every 2 months) the proper condition of the mandatory, warning, prohibition and safety labels.
- Make sure that the mains power supply has low impedance to avoid any negative effects on instruments being operated on the same mains.
- Do not expose the unit to sunlight.
- Connect the instrument to a power socket with earthing contact (PE-protective earth)!
- The power supply plug serves as a safe disconnecting device from the line and must always be easily accessible.
- Do not stay in the area below the instrument.
- Never operate damaged equipment.
- Always turn off the instrument and disconnect the mains cable from the power source before performing any service or maintenance procedures, or before moving the instrument.
- Never operate instruments with damaged mains power cables.
- Observe all warning labels.
- Never remove warning labels.
- Repairs are to be carried out only by qualified service personnel
-  **Warning !** This is not an explosion proof instrument. Do not use with any highly flammable or explosive materials.
- Never operate the hot plate in wet areas!
- Be aware of the danger of electric shocks!
-  **Warning !** Be aware of the potential danger of a fire outbreak due to overheating!
-  **Warning !** Wear your personal protective equipment in accordance with the hazard category of the media to be processed. Otherwise there is a risk from:
  - Splashing and evaporation of liquids
  - Ejection of parts
  - Release of toxic or combustible gases.

-  **Warning !** When in an emergency, disconnect the main power plug.
- Beware of hazards due to:
  - Flammable materials
  - Combustible media with a low boiling temperature
  - Glass breakage
  - Incorrect container size
  - Overfilling of media
  - Unsafe condition of container.
- Process pathogenic materials only in closed vessels under a suitable extractor hood.
- Only process media that will not react dangerously to the extra energy produced through processing. This also applies to any extra energy produced in other ways, e.g. through light irradiation.
- Never operate the Multi-purpose heat on home furniture!
- Do not use with flammable or combustible chemicals; the top surface and elements can reach the flash point temperature of many chemicals
- Do not plug or unplug power cord with wet hands. Such action can cause electric shock.
- Be aware of possible cable damage! Keep the connection cable away from the heating zone!

### 3.3. For protection of the equipment

All operators must be familiar with the multi-purpose heater and should read this entire manual.

- You have received a product designed for industrial and experimental use. Nevertheless, avoid strikes to the housing, vibrations, damage to the operating-element panel, and contamination.
- The multi-purpose heater must only be operated in the presence of an exhaust system!
- Never operate the multi-purpose heater in wet areas!
- Never operate the multi-purpose heater on home furniture!
- For safety reasons place the multi-purpose heater at least 50 cm from any inflammable material!
- Be aware of tripping! Never route the connection cable in highly frequented areas!
- Be aware of possible cable damage! Keep the connection cable away from the heating zone!
- When in an emergency, disconnect the main power plug.
- Transport the instrument with care.
- Sudden drops may cause damage in the interior of the instrument.

## 4. Operating Procedures

### 4.1. Environmental Operating Conditions

The multi-purpose heater must operate in the following conditions:

- Indoors
- Altitudes up to 2000 meters
- Temperatures from +5°C to +40°C
- Maximum relative humidity 80% for temperatures up to +31°C, linear decrease down to 50% relative humidity at a temperature of +40°C
- Max. mains fluctuation of  $\pm 10\%$  are permissible
- Overvoltage category II

### 4.2. Installation

#### Installing the Multi-Purpose Heater

- Place the multi-purpose heater on a stable, flat surface and proper environment for operation.
- If a PT100 temperature sensor package was ordered:
  - Install the sensor holder into the screw inlet on the back of the multi-purpose heater
  - Mount the Pt100 temperature sensor on the holder
  - Connect the PT100 temperature sensor cable to the corresponding connector in the back of the multi-purpose heater
- Connect the multi-purpose heater to a power socket with earthing contact.

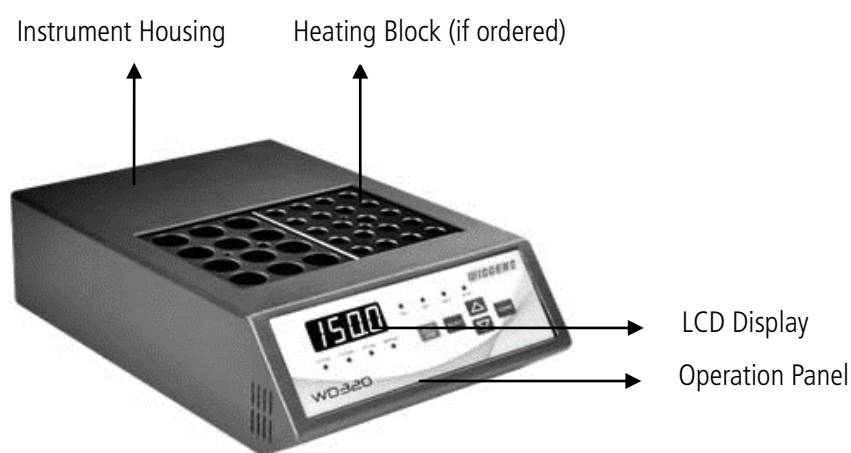
#### CAUTION!



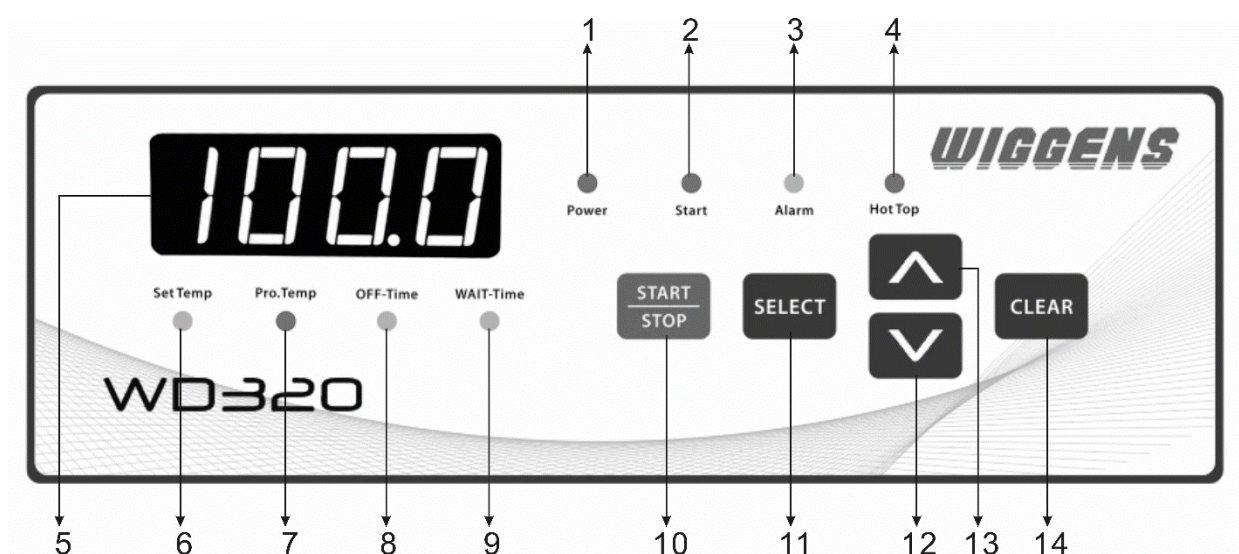
- Do not use voltages that are higher or lower than 10% of the voltage specified on the label, which is on the backside of the instrument.
- Keep the power cord and temperature sensor cable off of the multi-purpose heater while heating.
- Insert the heating blocks or water bath before operating the multi-purpose heater
- Heating corrosive liquids under poor ventilation hoods will shorten the life of the electronic components inside the instrument.
- Upon the first heating operation, a particular smell and white smoke can appear. This is normal. Put the instrument under a fume hood and moderately heat for about one hour until the smell and smoke fully disappear.

## 4.3. Operation






### 4.3.1. Overview of the Multi-Purpose Heater



### 4.3.2. Indicators and Functional Elements

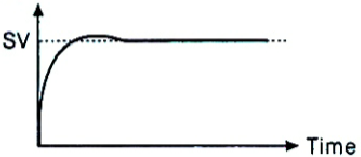
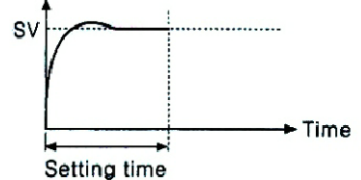
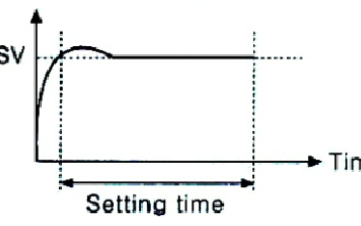


1	<b>Power Indicator</b>	Indicates that the instrument is powered on
2	<b>Start Indicator</b>	Indicates that the heating process has started
3	<b>Alarm Indicator</b>	Indicates that an alarm occurred
4	<b>Hot Top Indicator</b>	Indicates that the top plate / heating chamber has reached a temperature that could lead to burning injuries
5	<b>LED Display</b>	Shows the set temperature, actual temperature, and timer settings
6	<b>Set Temp Indicator</b>	Indicates that the display shows the set temperature

7	<b>Pro.Temp Indicator</b>	Indicates that the display shows the actual temperature
8	<b>OFF-Time Indicator</b>	Indicates that the display shows the timer in OFF-Time mode
9	<b>WAIT-Time Indicator</b>	Indicates that the display shows the timer in WAIT-Time mode
10		<b>START / STOP Button</b> Press the START / STOP Button to start / stop the instrument.
11		<b>SELECT Button</b> Press the SELECT Button to toggle between the operating modes: Set Temp, Temp, OFF-Time, and WAIT-Time. The LED light indicator will change accordingly.
12		<b>Up Button</b> Press the Up Button to increase the temperature or time value in the setting modes.
13		<b>Down Button</b> Press the Down Button to decrease the temperature or time value in the setting modes.
14		<b>CLEAR Button</b> The button clears up all set values and sets them to 0. The timer is set to continuous mode.

### 4.3.3. The Timer

The multi-purpose heater has three kinds of working modes: Continuous Mode, OFF-Time Mode, and WAIT-Time mode. When the timer is set to zero, the LED screen will display "OFF". The maximum time that can be set is 99:59, the left two numbers indicate the hour(s), and the right two numbers indicate the minute(s).

 <p>It starts the drive and controls at the same time and keeps this work until the power is cut off.</p>	<p><b>Continuous Mode</b></p> <p>When both OFF-Time and WAIT-Time are in the "OFF" state, the unit is working in continuous heating mode:</p>
 <p>It starts the drive and controls at the same time, stops the control during the setting time and it stops the control after the setting time.</p>	<p><b>OFF-Time Mode</b></p> <p>When the WAIT-Time is set to "OFF", and the OFF-Time mode is not set to OFF, the multi-purpose heater will operate in the OFF-Time mode. It starts to heat when the START / STOP Button is pressed, and stops when the time reaches the set time.</p>
	<p><b>WAIT-Time Mode</b></p> <p>When the WAIT-Time is not zero, regardless of whether the OFF-Time is set to "OFF" or not, the multi-purpose heater will operate in the WAIT-Time mode, which will start the timer from the point when the actual temperature has reached the set point temperature, When the set time is reached, the heating will stop automatically.</p>

#### 4.3.4. Operation of the Multi-Purpose Heater without Temperature Sensor

1. Setting the Temperature
  - Switch the main power button on
  - Press the SELECT Button until you have reached the Set Temp Indicator
  - Select the desired temperature by pressing the Up Button to increase or Down Button to decrease the set temperature
  - By holding the Up Button / Down Button the set temperature increases / decreases in higher increments
2. Setting the Timer
  - Press the SELECT Button until you have reached the OFF-Time Indicator / WAIT-Time Indicator
  - Select the desired time by pressing the Up Button to increase or Down Button to decrease the set time
  - By holding the Up Button / Down Button the set time increases / decreases in higher increments
  - Press the Down Button until the display shows OFF in order to switch off the timer and to work in continuous mode
3. Starting / Stopping the Heating Process
  - Press the SELECT Button until you reach the Pro. Temp Indicator in order to monitor the actual temperature
  - Press the START / STOP Button to start the heating process
  - Press the START / STOP Button again to stop the heating process or wait for the timer to stop the heating process automatically (if not in continuous mode)



#### CAUTION!

Risk of burning! Do not touch the heating zone!



#### CAUTION!

Residual heat! Do not touch the heating zone!



#### CAUTION!

Risk of overheating! Do not pull out the mains plug!



#### CAUTION!

Do not unplug and turn off the mains of the multi-purpose heater before the heating zone has completely cooled down. Turn off the mains switch and pull out the mains plug after the top plate has reached a safe temperature.

#### 4.3.5 Operation of the Multi-Purpose Heater with a Temperature Sensor

##### 1. Connecting the Temperature Sensor

- Be sure to use the correct temperature sensor
- Connect the temperature sensor at the rear of the multi-purpose heater
- Make sure that the cable of the temperature sensor is routed so that it cannot touch the heating zone.
- Immerse the temperature sensor into the liquid min. 30 mm in depth.



##### **Note!**

**In contrast to operation without temperature sensor, the multi-purpose heater now features:**

- Set temperature range of 40°C ~ 300°C instead of 50°C ~ 300°C.
- Monitoring and control of the external temperature as measured by the external temperature sensor

##### 2. Setting the Temperature

- Switch the main power button on
- Press the SELECT Button until you have reached the Set Temp Indicator
- Select the desired temperature by pressing the Up Button to increase or Down Button to decrease the set temperature
- By holding the Up Button / Down Button the set temperature increases / decreases in higher increments

##### 3. Setting the Timer

- Press the SELECT Button until you have reached the OFF-Time Indicator / WAIT-Time Indicator
- Select the desired time by pressing the Up Button to increase or Down Button to decrease the set time
- By holding the Up Button / Down Button the set time increases / decreases in higher increments
- Press the Down Button until the display shows OFF in order to switch off the timer and to work in continuous mode



#### 4. Starting / Stopping the Heating Process

- Press the SELECT Button until you reach the Pro. Temp Indicator in order to monitor the actual temperature
- Press the START / STOP Button to start the heating process
- Press the START / STOP Button again to stop the heating process or wait for the timer to stop the heating process automatically (if not in continuous mode)



#### **CAUTION!**

Risk of overheating! Do not pull out the mains plug!



#### **CAUTION!**

Residual heat! Do not touch the heating zone!



#### **CAUTION!**

Risk of overheating! Do not pull out the mains plug!



#### **CAUTION!**

Do not unplug and turn off the mains of the hot plate before the heating zone has completely cooled down. Turn off the mains switch and pull out the mains plug after the top plate has reached a safe temperature.

## 4.4. The RS-232 interface

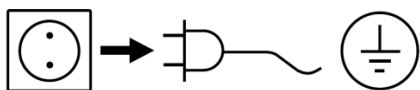
The multi-purpose heater provides a RS-232 connection for temperature monitoring. The actual temperature data will be sent through the RS-232 interface every 3 seconds. The data can be read with any software which can acquire data with from an RS-232 connection.

## 5. Cleaning and Maintenance

### 5.1. Routine Cleaning

Wipe the housing of the instrument with a damp cloth using a mild soap and water solution.

#### Cleaning



For cleaning disconnect the main plug.

Only use cleansing agents which have been recommended by WIGGENS

Use to remove:

Dyes isopropyl alcohol

Construction materials isopropyl alcohol/water containing surfactant

Cosmetics isopropyl alcohol/water containing surfactant

Foodstuffs water containing surfactant

Fuels water containing surfactant

- Do not allow moisture to get into the appliance when cleaning.
- Wear protective gloves when cleaning the devices.
- Before using another than the recommended method for cleaning or decontamination, the user must ascertain with WIGGENS that this method does not destroy the instrument



#### **Note:**

Do not use chlorine bleach, chlorine-based cleanser, abrasives, ammonia, steel wool or scouring pads with metal content or similar harsh solvents or abrasives. These may damage the surface of the instrument.

## 5.2. Maintenance

Do not attempt to service or repair a WIGGENS multi-purpose heater. If the multi-purpose heater housing is opened the warranty becomes void. Contact WIGGENS for return authorization and return instructions.

Ordering spare parts

When ordering spare parts, please give:

- Machine type
- Manufacturing number, see type plate
- Item number and designation of the spare part.

### Repair

Please only send devices in for repair that have been cleaned and are free of materials which might present health hazards. For this, use the "certificate of compliance" form which you can obtain from WIGGENS. If your appliance requires repair, return it in its original packaging. Storage packaging is not sufficient when sending the device - also use appropriate transport packaging.

## 6. Transport and Storage

- Clean the multi-purpose heater so that it is free from any materials which may be harmful to the health. Provide a material safety data sheet where appropriate.
- Place the multi-purpose heater unit and its parts into the original packing or a container with necessary protection to prevent damage during transport. Seal the original packing or container with packing tape.
- Store the packed unit in a dry place.



### **CAUTION!**

Failure to clean, maintenance, and handle the multi-purpose heater as outlined can lead to damages or be harmful to the health.

## 7 Accessories and Spare Parts

### 7.1. Temperature Sensor and Holder

Model	Description	Order No.
PT100 Temperature sensor, Type I	Length: 170 mm; Diameter: 4 mm; Material: Stainless steel; Admissible temperature: -30 ~ +300°C	PT100-01
PT100 Temperature sensor, Type II	Length: 300 mm; Material: Stainless steel	PT100-02
PT100 Temperature sensor, Type III	Length: 150 mm; Material: Stainless steel, PTFE coated	PT100-03
PT100 Temperature sensor, Type IV	Length: 300 mm; Material: Stainless steel, PTFE coated	PT100-04
PT100 Temperature Sensor, Type VI	Length: 250 mm; Diameter: 4 mm; Material: Glass; Admissible temperature: -30 ~ +300°C	PT100-06
Holder for Temperature Sensor	Holder and clamp for PT100 temperature sensor;	PT100-05



#### Note!

For more information about Accessories please contact your local supplier



#### CAUTION!

For safety and guarantee reasons only original accessory parts are to be used!

## 8. Service

### 8.1. Trouble-Shooting

Cause	Remedy
After switching on the unit, the display shows no light and the multi-purpose heater does not react to any input.	<ol style="list-style-type: none"> <li>1. Ensure that the mains electricity plug is plugged into a working socket outlet and check if the main switch is in the "on" position.</li> <li>2. Open the fuse holder of the power cord, which you can find at the back of the instrument. If the fuse is damaged, replace it with a 1A / 220V (WD310), 2A / 220V (WD 320) fuse. Clean the holder before your replacement</li> <li>3. If the fuse is not damaged and the malfunction cannot be determined, please contact the WIGGENS support.</li> </ol>
After switching on the unit, the power switch is lit up, but the multi-purpose heater does not react to any input.	This is probably a malfunction of the control board. Please contact the WIGGENS support.



WIGGENS reserves the right to carry out technical modifications with repairs for providing improved performance of the instrument.

## 8.2. Warranty

In accordance with *WIGGENS* warranty conditions, the warranty period is 24 months. For claims under the warranty please contact your local dealer. You may also send the machine direct to our works, enclosing the delivery invoice and giving reasons for the claim. You will be liable for freight costs. The warranty does not cover wearing parts, nor does it apply to faults resulting from improper use or insufficient care and maintenance contrary to the instructions in this operating manual.

*WIGGENS* reserves the right to decide the validity of any warranty claim. In case of faults arising either due to faulty materials or workmanship, parts will be repaired or replaced free of charge.

Any other compensation claims, such as consumables, damages caused by corrosion or accidental breakage, are excluded from this guarantee.

This warranty may only be altered by a specifically published amendment. No individual has authorization to alter the provisions of this warranty policy or its amendments.

## 8.3. Contact /Technical Service

If your device is not working properly:

⇒ Please inform *WIGGENS* Instruments by using our contact information.

You have contacted *WIGGENS* Instruments?

⇒ Copy and complete the Confirmation of condition of unit from these operating instructions.

⇒ Please repack the device appropriately for transport and send to *WIGGENS* Instruments together with the Confirmation of condition of unit.

### Our contact details

#### **WIGGENS GmbH**

Add: Gässlesweg 22-24, 75334 Straubenhardt, Germany

Tel.: 0049 7248 4529088

#### **Wiggens Co., Ltd.**

Room 426, Hall A, Office Building M8, No.1 Jiuxianqiao East Road, Chaoyang District, Beijing 100015, China

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info@wiggens.com

service@wiggens.com

www.wiggens.com

## Confirmation of condition of unit

In the case of repair, copy and complete the Confirmation of condition of unit and send it to *WIGGENS* Instruments.

### 1. Details about the unit

Product number

Serial number

Reason for repair

### 2. Has the device been cleaned, decontaminated/sterilized?

Yes

☐

No

☐

### 3. Is the unit in a condition which does not represent any health threats for the staff of our service department?

Yes

☐

No

☐

If not, which substances has the unit come into contact with?

---

### 4. Legally binding declaration

The customer is aware of being legally liable to *WIGGENS* Instruments for any damages arising from incomplete and incorrect information.

Date

Signature

Company stamp

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## Please Note

The shipper is responsible for the return of the goods in well-packed condition, suitable for the mode of transport.

### Sender information

Name

Company

Department, research group Street

Zip code, city

Country

Phone

E-mail



**WIGGENS GmbH**

Gässlesweg 22-24, 75334 Straubenhardt, Germany

Tel.: 0049 7248 4529088

**WIGGENS China**

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