



English

Guardian™ 2000

User Guide

1. SAFETY INFORMATION

Definition of Signal Warnings and Symbols

Safety notes are marked with signal words and warning symbols. These show safety issues and warnings. Ignoring the safety notes may lead to personal injury, damage to the instrument, malfunctions and false results.

WARNING	For a hazardous situation with medium risk, possibly resulting in severe injuries or death if not avoided.
CAUTION	For a hazardous situation with low risk, resulting in damage to the device or the property or in loss of data, or minor or medium injuries if not avoided.
ATTENTION	For important information about the product. May lead to equipment damage if not avoided.
NOTE	For useful information about the product.

Warning Symbols



General hazard



Explosion hazard



Caution, hot surface



Protective conductor terminal



Alternating current



Electrical shock hazard

Safety Precautions



WARNING! The protection provided by the unit may be impaired if used with accessories not provided or recommended by the manufacturer, or used in a manner not specified by the manufacturer.

- Always operate unit on a level surface for best performance and maximum safety.
- DO NOT lift unit by the top plate.
- To avoid electrical shock, completely cut off power to the unit by disconnecting the power cord from the unit or unplugging from the wall outlet.
- Disconnect unit from the power supply prior to maintenance and servicing.
- Spills should be removed promptly, after the unit has cooled down.
- Alkalis spills, hydrofluoric acid or phosphoric acid spills may damage the unit and lead to thermal failure.
- DO NOT immerse the unit for cleaning.
- DO NOT operate the unit at high temperatures without a vessel/sample on the top plate.
- DO NOT operate the unit if it shows signs of electrical or mechanical damage.
- Protective earthing of the equipment is achieved via connection of the provided power cord to a compatible grounded power outlet.



WARNING: unit is not explosion proof. Use caution when unit is on or when heating volatile materials.



WARNING! DO NOT use the unit in explosive atmospheres or with materials that could cause a hazardous environment from processing. Keep in mind the material flash point relative to the target temperature that has been set.



CAUTION! The top plate can reach 500°C, DO NOT touch the heated surface. Use caution at all times. Keep the unit away from explosive vapors and clear of papers, drapery and other flammable materials. Keep the power cord away from the heater plate.



CAUTION! Beware of the following risks when heating.

- Flammable materials
- Low boiling point combustible substances
- Glass breakage as a result of mechanical shaking power
- Incorrect container size
- Too much medium
- Unsafe condition of container



Earth Ground - Protective Conductor Terminal

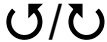
Alternating Current








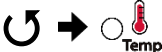




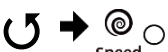
Intended Use

This instrument is intended for use in laboratories, pharmacies, schools, businesses and light industry. It must only be used for processing materials as described in these operating instructions. Any other type of use and operation beyond the limits of technical specifications, without written consent from OHAUS, is considered as not intended. This instrument complies with current industry standards and the recognized safety regulations; however, it can constitute a hazard in use. If the instrument is not used according to these operating instructions, the intended protection provided by the instrument may be impaired.

2. BASIC FUNCTIONS

Rotate



 I/O – Standby Switch	Turn unit on (Press switch)	
	Turn unit off (Press switch)	
 Temp Knob Functions	Change temp settings (Rotate temp knob)	
	Turn heater on (Rotate temp knob until unit green light appears)	
	Change temperature settings, while heating (Rotate temp knob)	
	Turn heater off (Rotate temp knob until unit green light fades)	
 Speed Knob Functions	Change speed settings (Rotate speed knob)	
	Turn stirrer on (Rotate speed knob until unit green light appears)	
	Change speed settings, while stirring (Rotate speed knob)	
	Turn stirrer off (Rotate speed knob until unit green light fades)	

3. CONTROL PANEL



1. **Left Knob:** Controls temperature.
2. **Standby Switch**
3. **Heater Indicator:** Illuminates when heater is running.
4. **Hot Top Caution Indicator:** Illuminates when the top plate surface is hot. Do not touch.
5. **Speed Indicator:** Illuminates when stirrer is running.
6. **Right Knob:** Controls speed.

Note: The top plates are of different dimension and material. Please refer to the actual product for detail.

4. MAINTENANCE

4.1 Cleaning



WARNING: Electric Shock Hazard. Disconnect the equipment from the power supply before cleaning. Make sure that no liquid enters the interior of the instrument.



Attention: Do not use solvents, harsh chemicals, ammonia or abrasive cleaning agents.

The housing may be cleaned with a cloth dampened with a mild detergent if necessary.

4.2 Replacing Power Fuse

The fuse is located at the back of the instrument. Choose the correct fuse to replace according to the fuse specification listed in the specification table.



WARNING: Electric Shock Hazard. Disconnect the equipment from the power supply before replacing the fuse.



The use of a fuse of a different type or with a different value, or bridging or shunting the fuse is not allowed and can possibly cause a hazard to your safety and lead to instrument damage!

4.3 Troubleshooting

The following table lists common problems and possible causes and remedies. If the problem persists, contact OHAUS or your authorized dealer.

Table 4-1 Troubleshooting

Error	Cause of Error	How to Fix
Unit fails to power on	Missing or blown fuse	Add or replace fuse as necessary.
Unit fails to heat	Heater over temperature or Heater damage	Unplug and replug the power cord for reset, if the failure consistent, please contact OHAUS.
Unit fails to stir	Motor overload or Motor damage	Smaller vessel or reduce volume in vessel and wait for auto reset, if the failure consistent, please contact OHAUS.

4.4 Service Information

If the troubleshooting section does not resolve your problem, contact an authorized OHAUS Service Agent. For Service assistance in the United States, call toll-free 1-800-526-0659 between 8:00 AM and 5:00 PM Eastern Standard Time. An OHAUS Product Service Specialist will be available to assist you. Outside the USA, please visit our website www.ohaus.com to locate the OHAUS office nearest you.

5. TECHNICAL DATA

Equipment Ratings:

Indoor use only

Altitude: 0 to 2000m

Operating temperature: 5°C to 40°C

Storage temperature: -20°C to 65°C

Operating humidity: 20 to 80% relative humidity, non-condensing

Storage humidity: 20 to 80% relative humidity, non-condensing

Voltage fluctuations: Mains supply voltage fluctuations up to $\pm 10\%$ of the nominal voltage.

Overvoltage category II

(Installation category):

Pollution degree: 2

Table 5-1 Specification






Model - Hotplate Stirrer - Hotplate - Stirrer	e-G21HSRDS e-G21HPRDS e-G21STRDS	e-G21HS04C e-G21HP04C e-G21ST04C	e-G21HS07C e-G21HP07C e-G21ST07C
Overall Dimensions (L x W x H)	264 x 163 x 101 mm (10.4 x 6.4 x 4.0")	264 x 163 x 110 mm (10.4 x 6.4 x 4.3")	318 x 223 x 112 mm (12.5 x 8.8 x 4.4")
Top Plate Dimensions	Ø 13.5 cm (5.3")	10.2 x 10.2 cm (4 x 4")	17.8 x 17.8 cm (7 x 7")
Top Plate Material	Ceramic Coated Stainless Steel	Ceramic	
Electrical (50 / 60 Hz) - Hotplate Stirrer - Hotplate	100-120V~ 5A / 220-240V~ 4A		100-120V~ 10A / 220-240V~ 7A
Electrical (50 / 60 Hz) - Stirrer	100-120V~ 2A / 220-240V~ 1A		
Fuses - Hotplate Stirrer - Hotplate	10 A, 5x20 mm, 250 VAC / 6.3 A, 5x20 mm, 250 VAC		15 A, 5x20 mm, 250 VAC / 10 A, 5x20 mm, 250 VAC
Fuses - Stirrer	6.3 A, 5x20 mm, 250 VAC		
Temperature Range	50°C to 380°C	70°C to 500°C	
Temperature Stability of Top Plate*	±3% > 100C and ±°3C ≤ 100C		
Stir Capacity	15 L		
Speed Range**	200 to 1600 rpm		
Weight Capacity	Up to 15 kg (33 lbs)		
Shipping Dimensions (W x D x H)	330 x 250 x 140 mm (13.0 x 9.8 x 5.5")		390 x 290 x 160 mm (15.4 x 11.4 x 6.3")
Shipping Weight - Hotplate Stirrer - Hotplate - Stirrer	3.1 kg 2.4 kg 2.9 kg	3.1 kg 2.4 kg 3.0 kg	4.6 kg 3.9 kg 4.5 kg

Note:

- + The parameter in the specification table are applicable to 2" (5cm) diameter center of the top plate.
- ** Minimal speed varies depending on the stir bar, vessel and fluid conditions.

6. COMPLIANCE

Compliance to the following standards is indicated by the corresponding mark on the product.

Mark	Standard
	This product complies with the applicable harmonized standards of EU Directives 2011/65/EU (RoHS), 2014/30/EU (EMC) and 2014/35/EU (LVD). The EU Declaration of Conformity is available online at www.ohaus.com/ce .
	This product complies with the applicable statutory standards of the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012, UK Electromagnetic Compatibility Regulations 2016 and Electrical Equipment (Safety) Regulations 2016. The UK Declaration of Conformity is available online at www.ohaus.com/uk-declarations .
	This product complies with the EU Directive 2012/19/EU (WEEE). Please dispose of this product in accordance with local regulations at the collecting point specified for electrical and electronic equipment. For disposal instructions in Europe, refer to www.ohaus.com/weee .
	EN 61326-1
	CAN/CSA-C22.2 No. 61010-1, CAN/CSA-C22.2 No. 61010-2-010, CAN/CSA-C22.2 No. 61010-2-051
	UL 61010-1, UL 61010-2-010, UL 61010-2-051

ISED Canada Compliance Statement:

CAN ICES-003(A) / NMB-003(A)

ISO 9001 Registration

The management system governing the production of this product is ISO 9001 certified.

Scan the QR code to download the full instruction manual or visit <http://www.ohaus.com/support> to view the full user manual.



Guardian™ 2000
Instruction Manual



WolfLabs

Pricing on any accessories shown can be found by keying the part number into the search box on our website.

The specifications listed in this brochure are subject to change by the manufacturer and therefore cannot be guaranteed to be correct. If there are aspects of the specification that must be guaranteed, please provide these to our sales team so that details can be confirmed.

www.wolflabs.co.uk

Tel : 01759 301142

Fax : 01759 301143

sales@wolflabs.co.uk

Please contact us if this literature doesn't answer all your questions.