Grant-bio

Compact CO_2 Platform Shaker

CPS-20

Operating Manual

Contents

1. About this edition of user instructions

The current edition of user instructions applies to following models:

Model	**Version**
CPS-20, compact CO_2 platform shaker	V.1GW

2. Safety precautions

Caution! Make sure you have fully read and understood the present instructions before using the equipment. Please pay special attention to sections marked by this symbol.

2.1. General safety

- Save the unit from shocks or falling.
- Store and transport the unit in a horizontal position (see package label) at ambient temperatures between -20°C and +60°C and maximum relative humidity of 80%.
- After transportation or storage keep the unit under room temperature for 2-3 hrs before connecting it to the mains.
- Before using any cleaning or decontamination methods except those recommended by the manufacturer, check with the manufacturer that the proposed method will not damage the equipment.
- Do not make modifications in design of the unit.
- The safety of the equipment may be impaired if the equipment is used with accessories not specified by the manufacturer or if the equipment is used in a manner not specified by the manufacturer.
- Hazards may occur if the equipment is used to mix flammable or explosive materials.
- Do not mix materials where the transfer of mechanical energy to glass could lead to a breakage.

2.2. Electrical safety

- Connect only to external power supply with voltage corresponding to that on the serial number label.
- Use only the external power supply provided with this product.
- Ensure that the external power supply is easily accessible during use.
- Disconnect the unit from the mains before moving.
- Turn off the unit by disconnecting the external power supply from the power socket.
- If liquid penetrates into the unit, disconnect it from the power socket and have it checked by a repair and maintenance technician.
- Do not operate the unit in premises where condensation can form. Operating conditions of the unit are defined in the **Specifications** section.

2.3. During operation

- Do not impede the platform motion.
- Do not operate the unit in environments with aggressive or explosive chemical mixtures. Please contact manufacturer for possible operation of the unit in specific atmospheres.
- Do not operate the unit if it is faulty or has been installed incorrectly.
- Do not use outside laboratory rooms.
- Do not place a load exceeding the maximum load value mentioned in the **Specifications** section of these instructions.

2.4. Biological safety

- It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilt on or penetrates into the equipment.

3. General information

CO_2 Shaker **CPS-20** provides regulated orbital motion of the platform and is designed for use specifically in CO_2 incubators. **CPS-20** is specifically designed for use in harsh environments such as CO_2 and humidity and provides reproducible results for cell culture growth. A choice of 5 interchangeable platforms provides the possibility of performing various procedures and techniques in various cultivation vessels. The specially designed remote controller allows for protection of electronics from CO_2 incubator environment, as well as, does not interfere with the experiment.

Shaker **CPS-20** incorporates a brushless motor with a guaranteed service life up to 35,000 hours. The unit is equipped with a triple eccentric mechanism for platform motion that provides supreme balancing characteristics, superior reliability and quiet operation. Typical applications include eukaryotic cells cultivation.

4.1. **Unpacking**. Remove packing materials carefully and retain them for future shipment or storage of the unit. Examine the unit carefully for any damage incurred during transit. The warranty does not cover in-transit damage. Warranty covers only the units transported in the original package.

4.2. **Complete set**. Package contents:

4.2.1. Standard set

- **CPS-20** Orbital Shaker .....1 piece
- External power supply .....1 piece
- Remote controller.....1 piece
- Operating instructions, declaration of conformity .....1 copy

4.2.2. Optional accessories

- UP-12 platform ..... on request
- Additional HB-200 holding bar for UP-12 platform ..... on request
- Bio PP-4 platform ..... on request
- P-16/88 platform..... on request
- P-12/100 platform..... on request
- P-6/250 platform..... on request

UP-12

Bio PP-4

P-16/88

P-12/100

P-6/250

4.3. **Platform installation**. Install the platform to the moving base of the shaking unit. Fit the pins on the underside of the platform into the holes on the moving base.

4.4. **Setup**.

Note. The CO_2 incubator must be not operating, switched off and in non-condensing environment during the installation of CO_2 shaker.

- Gently pull the control cable apart at the middle connector.
- Thread the longer part of the control cable (connected to the shaking unit) through the opening port in the CO_2 incubator, from inside to outside.
- Seal the opening as shown by the instructions for the incubator (e.g., with PE seal that comes with the CO_2 incubator)
- Place the shaking unit inside the CO_2 incubator positioned on an even horizontal and firm surface place. Make sure that the control cable does not obstruct the movement of the platform.
- Accurately connect the control cable in the middle, outside of the CO_2 incubator. Align ends by the white marking on the rim. Do not force the connection.
- Remove protective film from the display.
- Plug the external power supply into the 12 V socket at the bottom of the unit controller and position the power supply so that the plug is easily accessible.
- The unit controller features magnets on the back. If possible and necessary, put the unit controller on the outer wall or a door of the CO_2 incubator.

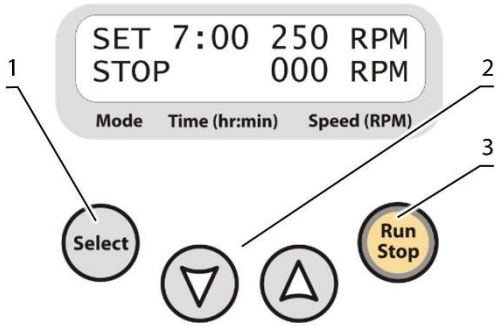

Figure 1. Control panel of CPS-20

5.1. Connect the external power supply to the mains. Display turns on.

5.2. Place samples on the unit platform.

5.3. **Setting the parameters**. Press the **Select** key (fig. 1/1) to choose the parameter to change. Each pressing of the **Select** key consecutively activates the parameters. The active parameter is flashing. Use the ▼ and ▲ keys (fig. 1/2) to set the necessary value. Pressing the key for more than 2 s increases the speed of value change.

5.3.1. Set the required working time interval in hours and minutes, the increment is 1 minute.

5.3.2. Set the required shaking speed, the increment is 10 rpm.

5.4. Press the **Run Stop** key (fig. 1/3). The platform starts rotation, indication RUN appears on display and the timer in the lower line of the display starts counting the time interval.

5.5. After the timer reaches the set time, the platform motion will stop and the flashing indication STOP, accompanied by the repetitive sound signal, will appear in the lower line of the display. Press the **Run Stop** key to shut down the signal.

5.6. The unit can be stopped before the set time elapses if necessary by pressing the **Run Stop** key. Press the **Run Stop** key to repeat the operation with the same working time and speed.

5.7. If the working time is not set (or is reset) and the Time indicator on display shows OFF, pressing the **Run Stop** key will start continuous operation of the unit until the **Run Stop** key is pressed.

5.8. The platform motion can be stopped at any time by pressing the **Run Stop** key. In this case, the program realization and the platform motion will stop and the unit will switch into the STOP mode.

5.9. After finishing the operation disconnect the external power supply from the mains.

6. Specifications

The shaking unit (without the unit controller) is designed specifically for operation in CO_2 incubators and closed laboratory environments at ambient temperature from +4°C to +45°C in a non-condensing atmosphere and relative humidity up to 98%.

The unit controller is designed for operation in cold rooms, incubators (excluding CO_2 incubators) and closed laboratory rooms at ambient temperature from +4°C to +40°C in a non-condensing atmosphere and relative humidity up to 80% for temperatures for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.

Grant is committed to a continuous programme of improvement and reserves the right to alter design and specifications of the equipment without additional notice.

Speed control range[1]	50-250 RPM
Increment	10 RPM
Digital time setting	1 min – 96 h or non-stop
Increment	1 minute
Maximum load	3 kg
Orbit	20 mm
Dimensions of the shaking unit, WxDxH	255x255x100 mm
Operating voltage and current	DC 12 V, 470 mA
Power consumption	5.7 W
External power supply	input AC 100-240 V, 50/60 Hz, output DC 12 V
Weight[2]	4.2 kg

7. Ordering information

7.1. Models and versions available:

CPS-20, compact CO_2 platform shaker

7.2. To inquire about or order the optional accessories, contact Grant or your local Grant representative.

7.2.1. Optional accessories:

UP-12, universal platform with bars and non-slip rubber mat (285x215 mm)
Bio PP-4, flat platform with non-slip silicone mat (255x255 mm, work area 230x230 mm)
P-12/100, platform with 12 clamps for 100 ml flasks (250x190 mm)
P-6/250, platform with 6 clamps for 250 ml flasks (250x190 mm)
P-16/88, platform with Spring holder for 88 of 10 to 50 ml tubes
HB-200, additional holding bar for UP-12

[1] Maximum speed depends on the load on the platform and the shape of the vessels.
[2] Accurate within ±10%.

8. Guarantee and Service

8.1. **Guarantee**. When used in laboratory conditions and according to this Operating Manual, this product is guaranteed for TWO YEARS (excluding items mentioned in tables 2 and 3) against faulty materials or workmanship.

8.2. **Service**. There are no user-serviceable parts inside the unit. For all maintenance and repairs (except as defined below) return to our service department in the UK or in other countries, our distributor.

8.3. **Cleaning and disinfection**.

8.3.1. **Cleaning the outside parts**. Use mild soap and water with a soft cloth or sponge for cleaning the exterior. Rinse remaining washing solution with distilled water. Wipe dry the excess water with clean, soft cloth or sponge.

8.3.2. **Disinfecting the exterior plastic parts**. Use 75% ethanol or DNA/RNA removing solution (e.g., PDS-250). After disinfecting it is necessary to wipe the surfaces dry.

8.3.3. **Autoclaving.** The platforms and its accessories are autoclavable, 15 min at 121 °C. The unit and the unit controller are not autoclavable.

EU Declaration of Conformity

All the products covered by this Manual comply with the requirements of the EU harmonised legislation verified using the following standards

Low Voltage Directive (2014/35/EC) for Electrical safety.	LVS EN 61010 Part 1 LVS EN 61010 Part 2-051
EMC directive (2014/30/EC) for Electromagnetic compatibility	LVS EN 61326-1
RoHS Directive (Directive 2011/65/EC including 2015/863) for Hazardous substances	LVS EN50581

UK Declaration of Conformity

All the products covered by this Manual comply with the requirements of UK statutory requirements verified using the following standards.

Electrical Equipment (Safety) Regulations 2016	BS EN 61010 Part 1 BS EN 61010 Part 2-051
Electromagnetic Compatibility Regulations 2016	BS EN 61326-1
The Restriction of the Use of Certain Substances in Electrical and Electronic equipment Regulations 2012	BS EN50581

Waste Electrical and Electronic Equipment (WEEE)

All the products covered by this Manual are marked with the crossed-out wheelie bin symbol indicating they must not be disposed of with unsorted waste. Safe recycling of WEEE helps conserve natural resources and protect human health.

Grant Instruments complies fully with the UK Waste Electrical & Electronic Equipment (WEEE) regulations 2013. We are a member of the B2B compliance scheme (Scheme Approval Number WEE/MP3338PT/SCH), which handle our WEEE obligations on our behalf. Grant Instruments have been issued with a unique registration number by the Environmental Agency, this reference number is WEE/GA0048TZ.

For information regarding WEEE collections in the UK please contact our B2B Compliance Scheme directly on 01691 676 124 or **www.b2bcompliance.org.uk**

In the EU, Grant Instruments complies with WEEE Directive 2012/19/EU.
Contact your local equipment supplier for WEEE collections.

REACH Regulations

This product does not contain any Substances of Very High Concern (SVHCs) at greater than 0.1% that have to be identified in accordance with Regulation (EC) No 1907/2006 and therefore does not have an entry in the SCIP database.

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