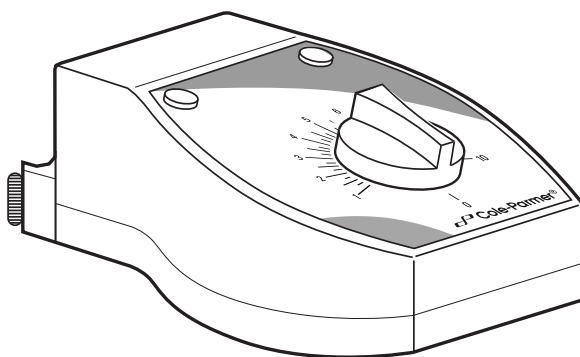


External Heating Controllers



User Guide

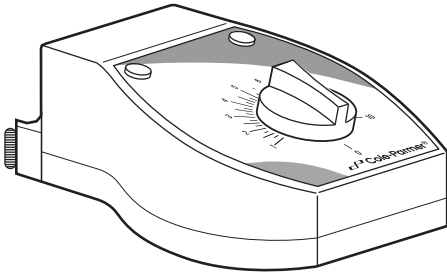


Figure 1: Front View

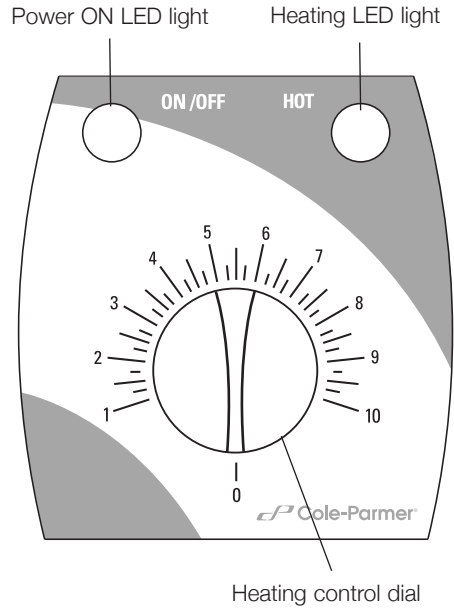


Figure 2: Faceplate

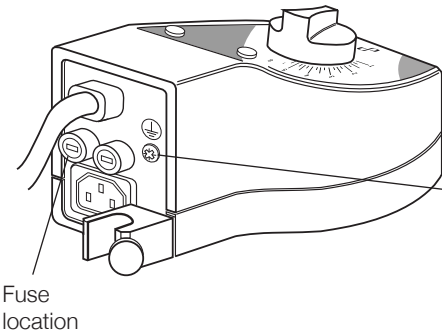


Figure 3: Back View 120 V model

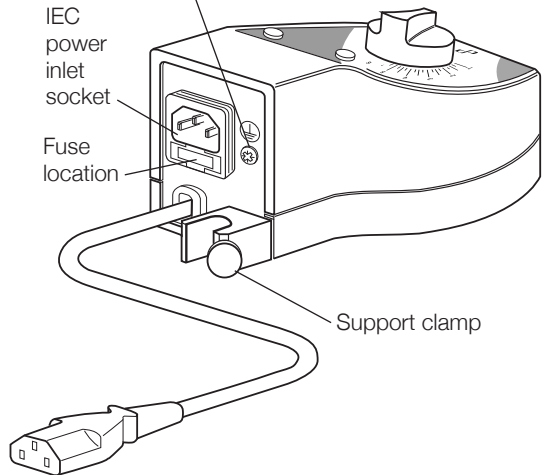


Figure 4: Back View 230 V model

External Heating Controllers

Introduction

Thank you for purchasing this Cole-Parmer product. To get the best performance from the equipment, and for your own safety, please read these instructions carefully before use. Before discarding the packaging check that all parts are present and correct.

This equipment is designed to operate under the following conditions:

- ❖ For indoor use only
- ❖ Use in a well ventilated area
- ❖ Ambient temperature range +5°C to +40°C (+41°F to +104°F)
- ❖ Altitude to 2000 m (6500 ft)
- ❖ Relative humidity not exceeding 80%
- ❖ Power supply fluctuations not exceeding 10% of nominal
- ❖ Overvoltage category II IEC60364-4-443
- ❖ Pollution degree 2 IEC664
- ❖ Ingress Protection rating IPX 0
- ❖ Use with a minimum distance all round of 300 mm (12 in.) from walls or other items

If the equipment is not used in the manner described in this manual and with accessories other than those recommended by the manufacturer, the protection provided may be impaired.

Electrical Installation



THIS EQUIPMENT MUST BE GROUNDED

Before connection please ensure that the line supply corresponds to that shown on the rating plate located on the back of the unit.

Power requirements:

120 V Models	Watt	Fuse (Amp)	230 V Models	Watt	Fuse (Amp)
36223-10	450	3.15 A	36223-11	800	5 A
36223-12	1150	12 A	36223-13	1800	10 A

The 120 V Models are provided with a NEMA 5-15 plug. The 230 V Models are provided with a UK 3-pin and a “Schuko” 2-pin plug.

Should the cable not be suitable for connecting to the power supply, replace the plug with a suitable alternative.

THIS OPERATION SHOULD ONLY BE UNDERTAKEN BY A QUALIFIED ELECTRICIAN.

NOTE: Refer to the equipment rating plate to ensure that the plug and fusing are suitable for the voltage and wattage stated.

The wires in the power cable (120 V) are colored as follows:

BLACK - HOT/LIVE

WHITE - NEUTRAL

GREEN - EARTH

The wires in the power cable (230 V) are colored as follows:

BROWN - HOT/LIVE

BLUE - NEUTRAL

GREEN/YELLOW - EARTH

IF IN DOUBT CONSULT A QUALIFIED ELECTRICIAN

Should the power cable need replacing, a cable of 1 mm² of harmonized code H05W-F connected to an IEC320 plug should be used.

The appropriate power cable should be connected BEFORE connection to the power supply.

General Description

Cole-Parmer External Heating Controllers provide a comprehensive answer to control the heating of resistive loads such as heating mantles, heating tapes and electric bunsen burners for benchtop operation. The heating controllers are designed to control one piece of laboratory equipment at a time or an equivalent load for the model being used. Each model delivers a different level of power according to the usage requirements and a support clamp is provided at the rear to allow the unit to be mounted using a standard 12.5 mm (0.5 in.) diameter lab support rod.

36223-10 120 V External Heating Controller with maximum coupled power of 450 W

36223-11 230 V External Heating Controller with maximum coupled power of 800 W

36223-12 120 V External Heating Controller with maximum coupled power of 1150 W

36223-13 230 V External Heating Controller with maximum coupled power of 1800 W

Available separately are extension cables for remote operation (i.e., inside a fume extraction unit) and lab support rods. Please visit the Cole-Parmer website www.coleparmer.com for further information.

Safety Advice

- ❖ HIGH TEMPERATURES ARE DANGEROUS as they can cause serious burns to operators and ignite combustible material. Users should be aware of the following safety advice:
- ❖ USE CARE AND WEAR PROTECTIVE GLOVES TO PROTECT HANDS.
- ❖ DO NOT use combustible substances near hot objects.
- ❖ The unit should be carried using both hands with the fingers under the side edges.
- ❖ NEVER move or carry the unit while still connected to the power supply.
- ❖ DO NOT position the unit such that it is difficult to disconnect it from the power by removing the power cable from the socket at the back.
- ❖ DO NOT position the unit such that the ventilation slots are blocked or otherwise obstructed.
- ❖ DO NOT leave equipment switched on, it is not recommended to leave any heating apparatus unattended during operation.
- ❖ AVOID SPILLAGES: If spillage does occur, disconnect unit from the power supply and follow instructions in the Servicing and Repair section.
- ❖ DO NOT operate or handle any part of the product with wet hands or use on surfaces that may become flooded.
- ❖ NEVER disconnect any heating apparatus from a controller that still has power being applied.

Before Use

Position the temperature controller on a firm level surface but DO NOT connect to the power supply yet.

Please ensure there is sufficient room for the unit to operate and that the ventilation slots are not blocked or otherwise obstructed.

Connecting to Equipment

Connect the power cable attached to external temperature controller to the IEC socket of the heating apparatus as illustrated in Figure 5 and connect to the power supply. The white Power ON LED light (see Figure 2) will illuminate to show the presence of electricity.

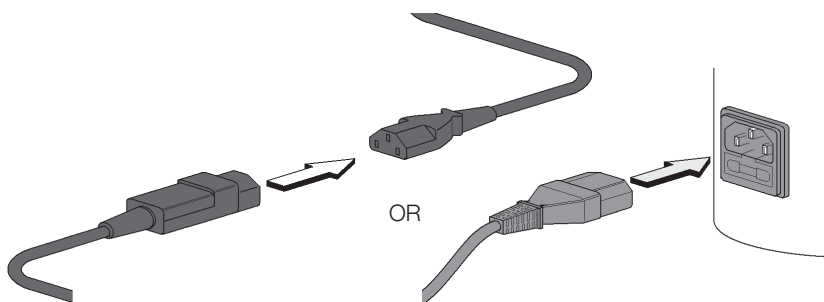


Figure 5

Operation

Switch the unit ON and adjust the heating control dial to the desired setting. An amber Heating ON LED light on the controller will begin to flash slowly to indicate power is being supplied to the heating apparatus. As the dial setting is increased, the flash rate will increase in speed until a maximum setting is reached and the Heating ON light is illuminated continuously.



WARNING: The top surface of the heating apparatus and any glassware will be HOT. Use protective equipment to prevent burns and protect from cuts that may be caused by breakage of glass vessels. Handle any hot vessel with care.



WARNING: The heating apparatus may still be HOT beyond 30 minutes, even though the "HOT" warning light has gone out.



WARNING: Do not leave heaters switched on when not in use or unattended.

Cleaning and Care



Before Attempting Cleaning:

Ensure that the unit is cool, and disconnect from the power supply.



WARNING: Ensure the unit is disconnected from the power supply before attempting maintenance or servicing.

Metal Casework:

The unit should be cleaned using a damp cloth and a mild detergent solution. Cleaning is made easier if spillages are attended to promptly. In any case, spillages of acids and alkalies **MUST** be removed immediately as these chemicals can attack and damage the casework finish. Ensure that the appropriate safety precautions are observed.

NOTE: Do not use solvents for cleaning any parts of this equipment.

Servicing and Repair

This product range does not require any routine servicing, but in the case of damage or an open circuit, the unit has replaceable fuses at the rear of the unit (see next page for instructions on replacing a fuse). In case of accidental spillage, instructions for cleaning and decontamination are also included in this section.

In the event of product failure it is recommended that any repair is only undertaken by suitably qualified personnel. For advice, please contact Cole-Parmer quoting the model and serial number.

Only spare parts supplied by the manufacturer or its agent should be used. Fitting of non-approved parts may affect the performance of the safety features of the instrument.

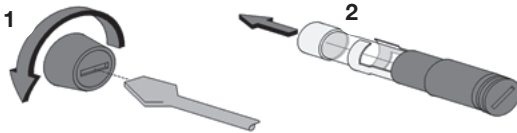
If in doubt, please contact Cole-Parmer.

Fuse Replacement

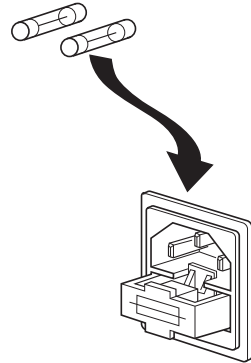
The mains fuse holder is located at rear the unit next to the power inlet. Refer to the Technical Specification section (on page 10) for correct fuse type and rating for your model. To replace the fuses, ensure the unit is OFF and disconnected it from the power supply. For the 230 V model, open the drawer of the IEC electrical input socket and remove the installed fuses. Ensure the fuses are of the correct rate and type before reinstalling the drawer into the unit.

120 V model

- 1 Unscrew both fuse holder caps from the fuse housings and remove the fuses.
- 2 Fit replacement fuses of the correct rate and value (see page 10).



230 V model



In Case of Accidental Spillage

Please note, the equipment cannot be assumed to meet all the safety requirements of EN 61010-2-010 until the drying out process has been fully completed.



WARNING: DO NOT TOUCH THE HEATING APPARATUS IF A SPILLAGE/BREAKAGE HAS OCCURRED. DISCONNECT THE POWER DIRECTLY AT THE POWER SUPPLY SOURCE.

Drying Out Procedure

In the event of spillage, disconnect the power supply and allow the unit to cool. Wearing suitable hand protection to prevent burns and cuts from heated glassware, carefully remove any pieces of broken glassware. If decontamination is necessary, see section below. If not, wipe off all excess liquid from the controller and surrounding area using an absorbent soft cloth. In the case of excessive spillage, invert the controller and allow it to drain for minimum of one hour. To complete the drying process, place the entire controller in the correct orientation inside a heated oven at 50°C (122°F) for a minimum period of 40 hours.

NOTE: Periodic electrical safety testing is recommended on a yearly schedule or immediately after any servicing to ensure safe operation.

In Case of Contamination



WARNING: THE BELOW PROCEDURE IS INTENDED AS A GENERAL GUIDE. SHOULD SPILLAGE OF A TOXIC OR HAZARDOUS FLUID OCCUR, THEN ADDITIONAL SPECIAL PRECAUTIONS MAY BE NECESSARY.

Decontamination Procedure

If the equipment has been exposed to contamination, the Responsible Body is responsible for carrying out appropriate decontamination. If hazardous material has been spilt on or inside the equipment, decontamination should only be undertaken under the control of the Responsible Body with due recognition of possible hazards. Before using any cleaning or decontamination method, the Responsible Body should check with Cole-Parmer that the proposed method will not damage the equipment. Prior to further use, the Responsible Body shall check the electrical safety of the unit. Only if all safety requirements are met can the unit be used again.

NOTE: In the event of this equipment or any part of the unit becoming damaged or requiring service, the item(s) should be returned to the manufacturer for repair **accompanied by a decontamination certificate**. Copies of the Certificate are available from the manufacturer or can be extracted from this user guide (see page 11). At the end of its service life, the product must be accompanied by a Decontamination Certificate.

Warranty

Cole-Parmer warrants this equipment to be free from defects in material and workmanship, when used under normal laboratory conditions, for a period of **one (1)** year. In the event of a justified claim, Cole-Parmer will replace any defective component or replace the unit free of charge.

This warranty does NOT apply if:

- ❖ Any repair has been made or attempted other than by the manufacturer or its agent.
- ❖ Any minor coating chips or scratches occur during normal use (i.e., wear and tear).
- ❖ Damage is caused by fire, accident, misuse, neglect, incorrect adjustment or repair, damage caused by installation, adaptation, modification or fitting of non-approved parts.

Technical Specification

MODEL	36223-10	36223-11
Control method	Analog	Analog
Controller power consumption	< 1 W	< 1 W
Support rod clamp size	12.7 mm (0.5 in.)	12.7 mm (0.5 in.)
Maximum coupled power	450 W	800 W
Overall dimensions (w x d x h)	95 x 130 x 105 mm (3.75 x 5.1 x 4.1 in.)	95 x 130 x 105 mm (3.75 x 5.1 x 4.1 in.)
Net weight	0.5 kg (1 lb)	0.5 kg (1 lb)
Electrical supply	120 V, 50/60 Hz	230 V, 50/60 Hz
Fuse rating and type	3.15 A, 5 x 20 mm, Glass quick blow	5 A, 5 x 20 mm, Glass quick blow

MODEL	36223-12	36223-13
Control method	Analog	Analog
Controller power consumption	< 1 W	< 1 W
Support rod clamp size	12.7 mm (0.5 in.)	12.7 mm (0.5 in.)
Maximum coupled power	1150 W	1800 W
Overall dimensions (w x d x h)	95 x 130 x 105 mm (3.75 x 5.1 x 4.1 in.)	95 x 130 x 105 mm (3.75 x 5.1 x 4.1 in.)
Net weight	0.5 kg (1 lb)	0.5 kg (1 lb)
Electrical supply	120 V, 50/60 Hz	230 V, 50/60 Hz
Fuse rating and type	12 A, 5 x 20 mm, Glass quick blow	10 A, 6 x 32 mm, Glass quick blow

DECONTAMINATION CLEARANCE CERTIFICATE

For the Inspection, Repair or Return of Medical, Laboratory or Industrial Equipment.

Prior to a Service Engineer working on equipment that has been in an environment where substances hazardous to health may have been used, you are requested to provide the following information:

Company: _____ Address: _____
Department: _____
Contact Name: _____
Tel Number: _____
Fax Number: _____
Model Number: _____ Serial Number: _____

Please answer all questions by indicating YES/NO as applicable and by providing details below:

1. Has the equipment been exposed to any of the following;

A. Blood, body fluids, pathological specimens YES/NO Provide details if YES

B. Biodegradable material that could become a hazard YES/NO Provide details if YES

C. Other biohazard YES/NO Provide details if YES

D. Chemical or substances hazardous to health YES/NO Provide details if YES

E. Radioactive substances. State name(s) and quantities of isotopes and checks made for residual activity YES/NO Provide details if YES

F. Other hazards YES/NO Provide details if YES

2. Please provide details of any hazard present as indicated above. Include details of names and quantities of agents as appropriate:

3. Your method of decontamination (please describe):

4. Are there likely to be any areas of residual contamination (please specify):

I declare that the above information is true and complete to the best of my knowledge and belief.

Authorized signature: _____ Name (please print): _____

Title/Position: _____

For and behalf of: _____ Date: _____

Use reverse side if additional space is needed.





These products meet the relevant EC harmonized standards for radio frequency interference and may be expected not to interfere with, or be affected by, other equipment with similar qualifications. We cannot be sure that other equipment used in their vicinity will meet these standards

and we cannot guarantee that interference will not occur in practice. Where there is a possibility that injury, damage or loss might occur if equipment malfunctions due to radio frequency interference, or for general advice before use, please contact the manufacturer.

Declaration of Conformity

Catalog Number:	Description:
36223-10	EXTERNAL HEATING CONTROLLER, 450 W, 120 V
36223-11	EXTERNAL HEATING CONTROLLER, 800 W, 230 V
36223-12	EXTERNAL HEATING CONTROLLER, 1150 W, 120 V
36223-13	EXTERNAL HEATING CONTROLLER, 1800 W, 230 V

This product complies with the requirements of the EU Directives listed below:

2004/108/EC	EMC Directive
2006/95/EC	Low Voltage Directive (LVD)
2011/65/EC	RoHs Directive



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