

EXTERNAL DIGITAL CONTROLLER



FIGURE 1 - FRONT VIEW

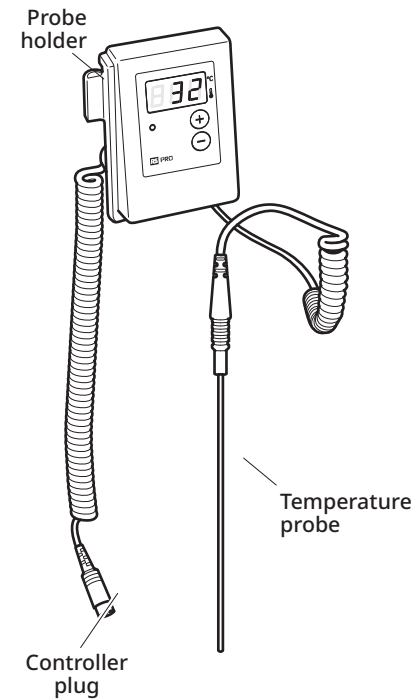


FIGURE 2 - REAR VIEW

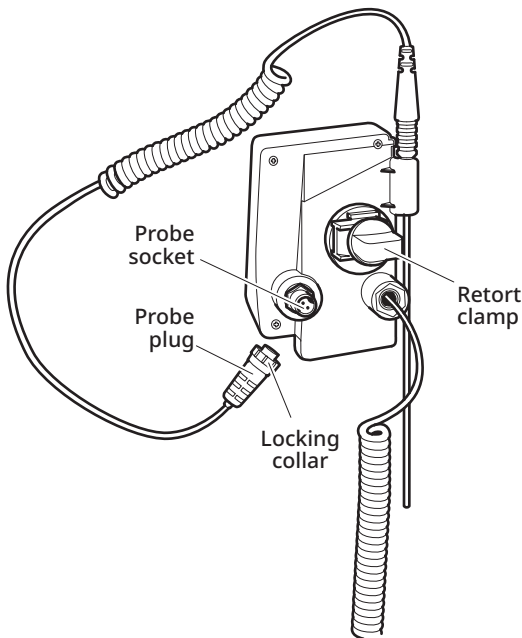


FIGURE 3 - HOTPLATE FRONT VIEW

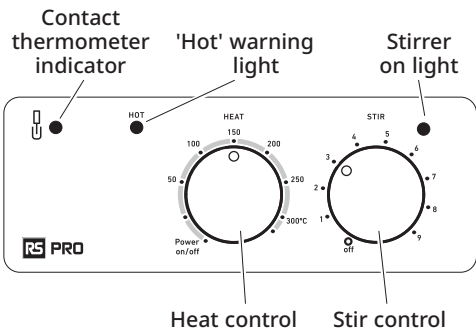
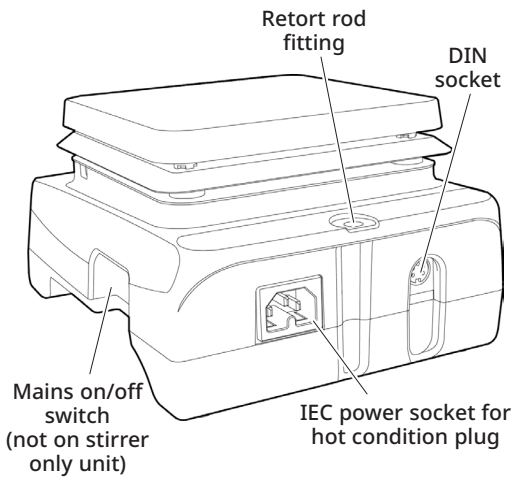


FIGURE 4 - HOTPLATE REAR VIEW



INSTRUCTIONS FOR USE

INTRODUCTION

Thank you for purchasing this piece of RS PRO equipment. 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.

GENERAL DESCRIPTION

The RS PRO Temperature Controller is the ideal instrument for the accurate temperature control of aqueous and oil based samples in the laboratory. The Temperature Controller can be used in two different modes; as a precise temperature controller from 20 to 200°C or as a digital thermometer from -4 to 325°C. With digital setting and display of temperature, the Temperature Controller temperature controller is accurate to $\pm 0.5^{\circ}\text{C}$.

The RS PRO External Temperature Controller is compatible with the RS PRO ceramic & aluminium hotplates and hotplate stirrers.

SAFETY ADVICE BEFORE USE



If the equipment is not used in the manner described in this manual and with accessories other than those recommended by RS PRO the protection provided might be impaired. This equipment is designed to operate under the following conditions: -

- For indoor use only
- Use in a well ventilated area
- Ambient temperature range $+5^{\circ}\text{C}$ to $+40^{\circ}\text{C}$
- Altitude to 2000m
- Relative humidity not exceeding 80%
- Use with a minimum distance all around of 200mm from walls or other items.
- Never move or carry the unit when in use or connected to the hotplate.
- Do not use in a hazardous atmospheres or with hazardous materials

PREPARATION FOR USE

To use the Temperature Controller temperature controller with either a metal top or ceramic top hotplate, place the hotplate on a firm, level surface.

Open the jaws of the retort clamp on the rear of the Temperature Controller temperature controller by turning the clamp knob anticlockwise. The clamp can be used with retort rods from 9.5mm to 13mm diameter. Slide the Temperature Controller on to the retort rod and tighten by turning the clamp knob clockwise.

Note: DO NOT OVER TIGHTEN

Connect the Temperature Controller controller plug to the DIN probe socket at the rear of the hotplate (Figures 1 and 4).

Connect the probe plug to the probe socket at the rear of the controller (Figures 2 and 4). To ensure the best connection, tighten the locking collar on the plug by turning clockwise.

Connect the mains supply lead to the IEC socket at the rear of the hotplate and switch on at the mains. Where the unit has a mains on/off switch, switch the unit on using this switch.

To switch on the Temperature Controller temperature controller, turn the heat control knob on the hotplate clockwise (Figure 3).

Note: The controller power is supplied by the hotplate

The Temperature Controller temperature controller and hotplate are now ready for use. Correct communication between the Temperature Controller temperature controller and the hotplate is indicated by the illuminated amber contact thermometer indicator on the front panel of the hotplate.

Note: The hotplate and controller will perform an automatic self-test at switch on, before the current temperature of the probe is displayed. The factory default set temperature is 20°C .

OPERATION

Controller positioning -

The Temperature Controller temperature controller is supplied with a detachable temperature probe (Figure 2). This useful feature enables the Temperature Controller temperature controller to be positioned away from damaging fumes.

The temperature controller is factory set such that the retort clamp is positioned for mounting on a vertical retort rod. To mount the Temperature Controller temperature controller on to a horizontal retort rod, ease back the clamp situated at the rear of the controller sufficiently to clear the right-angled raised location. Rotate clockwise by 90° until the clamp snaps back into the location.

Probe positioning -

For optimum temperature control, ensure the end of the sensing probe is immersed at least 20mm deep into the medium being controlled. The temperature probe when not in use should be placed in the probe holder located on the left hand side of the Temperature Controller control panel. For safety and to avoid contamination, always wipe the probe clean prior to placing into holder.

Using the Temperature Controller temperature controller

The Temperature Controller can be used in two different modes, either as a temperature controller ('control mode') or as a digital thermometer ('monitor mode').

To use the Temperature Controller in control mode

Ensure that the Temperature Controller temperature controller is connected to the hotplate. Also ensure the temperature probe is attached to the controller and immersed in the medium to be controlled before switching on at the mains.

ALUMINIUM & CERAMIC HOTPLATE AND HOTPLATE STIRRERS

Turn the unit on using the On/Off switch at the side of the unit. The Temperature Controller will power up in monitor mode. To turn on the temperature controller in control mode, turn the heat control clockwise on the front panel of the hotplate.

The Temperature Controller temperature controller in control mode is indicated by the illuminated amber contact thermometer indicator on the front panel of the hotplate (Figure 3). The LED and display will be visible on the Temperature Controller temperature controller panel (Figure 5) and the current temperature of the medium will be displayed.

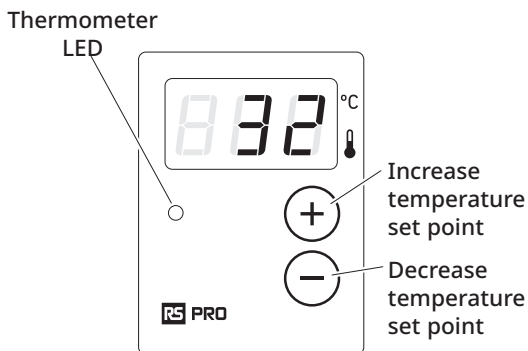


Figure 5 - Temperature Controller temperature controller panel

NB: Turning the heat control clockwise on the hotplate turns the Temperature Controller temperature controller into control mode and cannot be used to set the hotplate temperature.

To set the temperature in controller mode Press the + or - key once to instigate the temperature set point mode. This is indicated by a flashing LED on the Temperature Controller temperature controller panel. To select the temperature, use the '+' or '-' keys to obtain the desired temperature. To set the temperature, release the key. The LED will cease flashing once the temperature has

been set. With the probe in the sample, the thermometer LED will illuminate as follows:

- Green** – temperature set point not reached
- Amber** – liquid at set point
- Red** – liquid hotter than set point

NB: To obtain accurate temperature control, the minimum temperature set point must be at least 15°C above the surrounding ambient temperature.

TO USE THE TEMPERATURE CONTROLLER IN MONITOR MODE

To use the Temperature Controller controller in monitor mode together with the hotplate, ensure the -unit is switched off using the mains control switch at the side. Hold down both the ‘+’ and ‘-’ keys simultaneously on the Temperature Controller temperature controller and turn the mains switch to ‘ON’. Once the digital display illuminates, release the keys on the Temperature Controller temperature controller. Monitor mode will be indicated by a red flashing LED at the bottom right hand corner of the display of the Temperature Controller temperature controller. The amber control LED on the front panel of the hotplate will NOT be illuminated in monitor mode.

NB: When in monitor mode, the Temperature Controller temperature controller operates as a digital thermometer only, and no longer controls the temperature of the medium in use. The hotplate temperature can now be manually adjusted to the desired setting.

TO CHANGE FROM MONITOR MODE TO CONTROL MODE

To change from monitor mode to controller mode, press either the ‘+’ or ‘-’ key on the Temperature Controller temperature controller once. The unit will revert to controller mod, and will be indicated by the illuminated amber contact thermometer indicator visible on the front panel of the

hotplate. The red LED on the bottom right hand corner of the Temperature Controller temperature controller display will extinguish when the unit is in controller mode.

NB: For safety reasons, when reverting from monitor to controller mode the Temperature Controller temperature controller will default to the set point temperature of 20°C.

TROUBLESHOOTING

In the event of malfunction the Temperature Controller temperature controller can self-diagnose certain fault conditions. In this case the display will show a message in the form of ‘Err XX’ where XX is either a single or double digit code, which identifies the fault.

ERROR CODE	FAULT CONDITION	REMEDY
Err 1	Thermometer not calibrated	Return to factory
Err 2	Electronic fault	Return to factory
Err 4	Probe plug removed in control or monitor mode	Reconnect probe. Continuing error code indicates hotplate fault - return to factory
Err 8	Probe out of sample when in control mode	Replace probe in sample
Err 16	Ambient temperature inside hotplate too high (controller attached)	Switch off at 'mains' and allow to cool

SERVICING AND REPAIR

WARNING: Ensure the hotplate is disconnected from the mains electricity supply before attempting maintenance or servicing.

This equipment does not require routine servicing. The only maintenance required is to clean external surfaces with a damp cloth and mild detergent. Spillages or splashes should be cleaned up straightaway after isolating the hotplate from the mains electricity supply.

CE UK
CA This product meets the applicable CE Directives and UKCA Legislation for radio frequency interference and may be expected not to interfere with, or be affected by, other equipment with similar qualifications.

be sure other equipment used in its vicinity will meet these standards and so we cannot guarantee that interference will not occur in practise. Where there is a possibility that injury, damage or loss might occur if equipment interference, or for general advise before use, contact the manufacturer.

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