Model 3125

Detachable Hot Plate

Users' Manual

Hart Scientific

Rev. 8C1501

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WARNING

The plate gets extremely hot. **DO NOT TOUCH.**

DO NOT TOUCH the metal parts on the plate.

WARNING

To ensure the safety of operating personnel, and to avoid damage to this equipment:

DO NOT connect this unit to any other instrument or outlet other than the 2200 controller.

WARNING

HIGH VOLTAGE
is used in the operation of this equipment.

SEVERE INJURY OR DEATH
may result if personnel fail to observe safety precautions.
Before working inside the equipment, turn power off and disconnect power cord.

WARNING

HIGH TEMPERATURE MAY BE PRESENT
in this equipment.

FIRES AND SEVERE BURNS
may result if personnel fail to observe safety precautions.

WARNING

To ensure the safety of personnel, and to avoid damage to equipment:

DO NOT use this unit for any application other than calibration work.
DO NOT use this unit in environments other than those listed in the user's manual.

Continuous use of this equipment at high temperatures for extended periods of time requires caution.
Completely unattended high temperature operation is not recommended for safety reasons.
Components and heater lifetimes can be shortened by continuous high temperature operation.
Follow all safety guidelines listed in the user's manual.

WARNING

The 2200 Controller and the 3125 Detachable Hot Plate are a matched set.

DO NOT mix and match sets.

WARNING

CALIBRATION EQUIPMENT SHOULD ONLY BE USED BY TRAINED PERSONNEL.

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1 Introduction

Hart Scientific's Model 3125 Detachable Hot Plate is controlled by Hart Scientific's 2200 controller and uses a precision platinum RTD as a sensor with a heater to control the temperature. The 3125 and 2200 are a matched set. Both of them have the same serial number.

The controller display shows the temperature and also the set-point temperature. The temperature may be set to any temperature within the range of 35°C to 400°C in 0.01°C or °F increments by using the buttons on the control panel. The controller's multiple fault protection devices insure user and instrument safety and protection.

The Detachable Hot Plate (see Figure 1) consists of a controlled plate made of aluminum. A heater is attached to the bottom with an RTD temperature sensor used to control it. The housing consists of a top cover and a base, which serve as a clamp and strain relief point for the wiring. The Reference Well is available for use with a 3/16-inch diameter probe, which may be used to check the plate temperature. This well is used to calibrate the system.

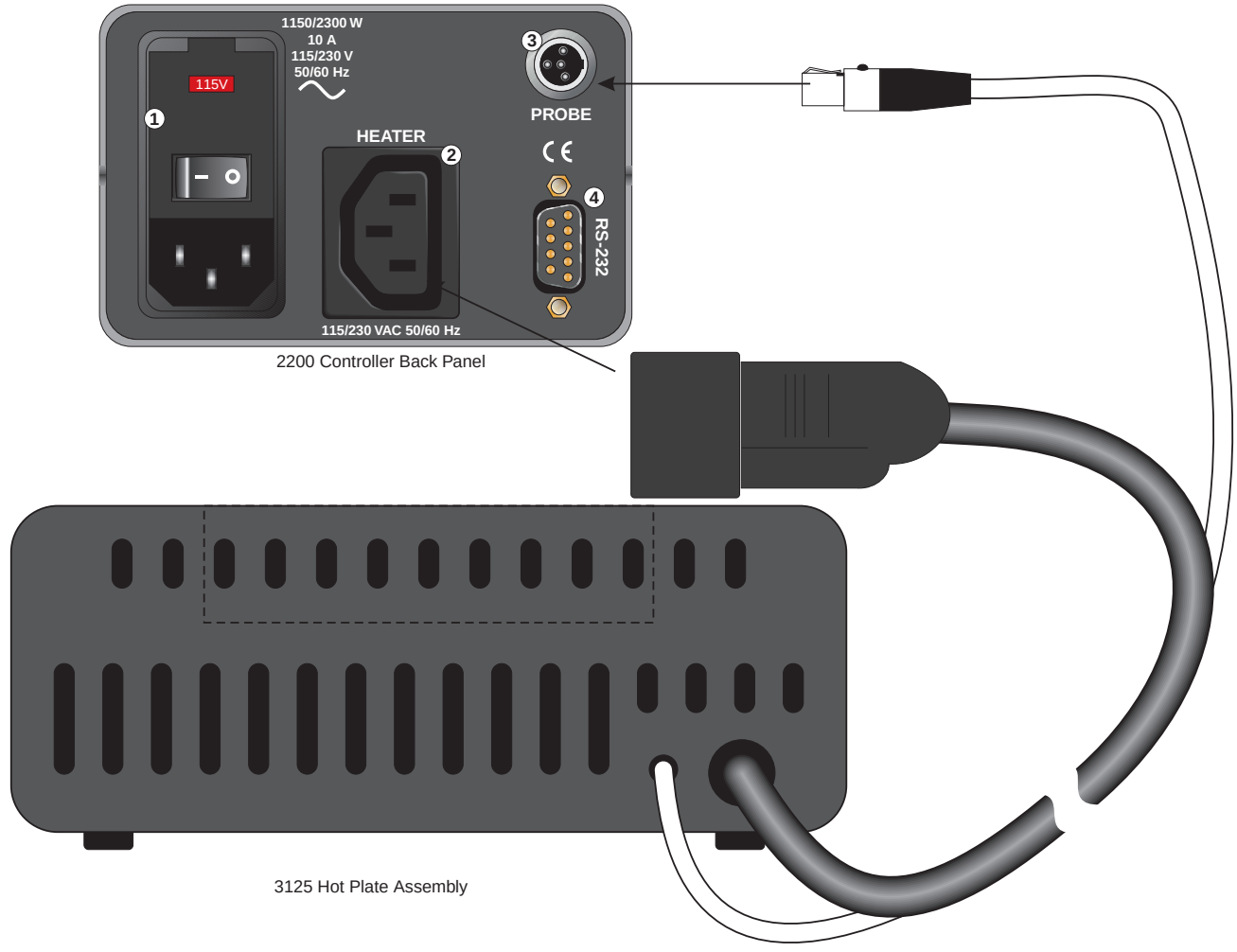

Figure 1 *Controller and Hotplate Assembly*

2 Specifications and Environmental Conditions

2.1 Specifications

Operating Range	35°C to 400°C (95°F to 752°F)
Accuracy	±0.5°C to 200°C ±1.0°C to 400°C Traceable to NIST
Resolution	0.01°C or °F
Readout	°C or °F switchable
Stability	±0.2°C to 200°C ±0.3°C to 400°C
Controller	Hart Model 2200 Microprocessor based with RS232 serial port
Sensor	RTD
Heater	325 Watt, solid state controlled
Plate (accessible)	3.8 inch diameter
Weight	4.5 lb. (2.1 kg)

2.2 Environmental Conditions

Although the instrument has been designed for optimum durability and trouble-free operation, it must be handled with care. The instrument should not be operated in an excessively dusty or dirty environment. The instrument operates safely under the following conditions:

- temperature range: 5-40°C (41-104°F)
- ambient relative humidity: 15-50%
- pressure: 75kPa-106kPa
- mains voltage within ±10% of nominal
- vibrations in the calibration environment should be minimized
- altitude does not effect the performance or safety of the unit

2.3 Warranty

Hart Scientific, Inc. (Hart) warrants this product to be free from defects in material and workmanship under normal use and service for a period as stated in our current product catalog from the date of shipment. This warranty extends only to the original purchaser and shall not apply to any product which, in

Hart's sole opinion, has been subject to misuse, alteration, abuse or abnormal conditions of operation or handling.

Software is warranted to operate in accordance with its programmed instructions on appropriate Hart products. It is not warranted to be error free. Hart's obligation under this warranty is limited to repair or replacement of a product, which is returned to Hart within the warranty period and is determined, upon examination by Hart, to be defective. If Hart determines that the defect or mal-function has been caused by misuse, alteration, abuse or abnormal conditions or operation or handling, Hart will repair the product and bill the purchaser for the reasonable cost of repair.

To exercise this warranty, the purchaser must forward the product after calling or writing Hart for authorization. Hart assumes NO risk for in-transit damage. For service or assistance, please contact the manufacturer.

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THE FOREGOING WARRANTY IS PURCHASER'S SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OR MERCHANTABILITY, OR FITNESS FOR ANY PARTICULAR PURPOSE OR USE. HART SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES OR LOSS WHETHER IN CONTRACT, TORT, OR OTHERWISE.

3 Safety Guidelines

- Operate the instrument in room temperatures between 5-50°C (41-122°F). Allow sufficient air circulation by leaving at least 15 cm (6 inches) of space between the instrument and nearby objects. Overhead clearance 45 cm (18 inches) to allow for safe and easy placement and removal of sensors for calibration.
- The hot plate is a precision instrument. Although it has been designed for optimum durability and trouble free operation, it must be handled with care. The instrument should not be operated in excessively dusty or dirty environments or near liquids that may present an electrical shock hazard. Do not operate near flammable materials.
- DO NOT use fluids to clean off the surface.
- The instrument generates extreme temperatures. Precautions must be taken to prevent personal injury or damage to objects. Sensors may be extremely hot when removed from the instrument. Cautiously handle sensors to prevent personal injury. Carefully place sensors on a heat resistant surface or rack until they are at room temperature. Allow the surface to cool before transporting the instrument.
- Never introduce any foreign material onto the surface plate. Fluids, etc. can leak into the instrument causing damage.
- The unit is fused through the 2200 Controller. Refer to the 2200 Controller manual for fuse information.

4 Troubleshooting

If problems arise while operating the 3125, this section provides some suggestions that may help you solve the problem. Opening the unit without contacting Hart Scientific Customer Service may void the warranty.

Unit will not heat

- Check the power cord to see if it is connected to the 2200 controller.

Out of calibration

- Ensure that the 2200 and 3125 are a matched set. Check the serial number to the hot plate on both the hot plate and the 2200 controller. These two serial numbers must match.
- Check that the calibration parameters R0, Alpha, and Delta match the Report of Calibration.

Fuses blow

- Make sure the correct fuse rating and type are being used.
- Only operate the hot plate at the voltage specified on the serial number label.

Unit is unstable

- Check that the proportional band on the controller matches the Report of Calibration.
- Make sure ambient conditions are stable