

4-INS-103



INSTALLATION, OPERATION AND CARE MANUAL

REMEMBER TO COMPLETE THE ONLINE WARRANTY REGISTRATION TO RECEIVE YOUR FULL TWO YEAR WARRANTY.

WARRANTY

All Scientific equipment comes with a standard ONE year warranty, The 1 Year Extended Warranty is only valid for customers who have registered their warranty online at www.scientific.co.za within the first year after making their purchase.

MANUFACTURED
IN SOUTH AFRICA



www.scientific.co.za

REGISTER ONLINE TODAY

- o Register your warranty on-line at www.scientific.co.za today and learn how to get the best out of your Scientific product.

NO WEB ACCESS?

- o If you do not have access to the Web, register by completing this form and Email it to the Scientific head office in South Africa. Email: sales@scientific.co.za

ONLY COMPLETE IF YOU DO NOT HAVE WEB ACCESS

Company _____

Name _____

Surname _____

Telephone _____

Cellphone _____

Email Address _____

Country _____

Postal address _____

Scientific products purchased _____

Product Code (see box label) _____

Serial number (see back of machine) _____

INTENDED USE

- | | | |
|---------------------------------------|--|---|
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Genetics | <input type="checkbox"/> Pharmaceutical Physics |
| <input type="checkbox"/> Automotive | <input type="checkbox"/> Industrial | <input type="checkbox"/> Power Generation |
| <input type="checkbox"/> Biochemistry | <input type="checkbox"/> Medical | <input type="checkbox"/> Special Metals |
| <input type="checkbox"/> Botony | <input type="checkbox"/> Microbiology | <input type="checkbox"/> Sugar |
| <input type="checkbox"/> Chemistry | <input type="checkbox"/> Mining | <input type="checkbox"/> Water |
| <input type="checkbox"/> Cosmetics | <input type="checkbox"/> Nuclear | <input type="checkbox"/> Zoology |
| <input type="checkbox"/> Electronics | <input type="checkbox"/> Paper/Packaging | <input type="checkbox"/> Other (Specify): _____ |
| <input type="checkbox"/> Food | <input type="checkbox"/> Petrochemical | _____ |



ALL SCIENTIFIC EQUIPMENT COMES WITH A TWO YEAR WARRANTY ON COMPONENTS AND DEFECTIVE WORKMANSHIP - Ts & Cs APPLY.



LIMITED WARRANTY

The manufacturer guarantees that this unit is free from defect in materials and workmanship when it leaves the factory and undertakes to replace or repair the unit if it proves defective in normal use or during servicing for a period of 1(one) year from the date of original installation and is for the benefit of the original purchaser only. The liability under this warranty is limited to repairing the defective unit or any part of the unit provided it is sent carriage paid to an authorized dealer. All other Warranties ,expressed or implied , statutory or otherwise, including without limitations any implied Warranty of Merchantability or fitness for purpose are excluded .The Seller shall in no event be liable for direct,indirect or consequential damages in connection with the products.

This unit is at all times to be used according to the instruction manual and for its normal purpose.

This Warranty is not effective if damage occurs because of accident, carelessness,improper installation,lack of proper set-up,supervision when required or if the equipment is installed or operated in any manner contrary to the installation and operating instructions. In these cases,repairs will be made at a reasonable cost. Work performed by unauthorized personnel or unauthorized service agencies voids this Warranty.

DIGITAL CIRCULATOR



**INSTALLATION OPERATION AND CARE OF
DIGITAL CIRCULATOR
MODEL: 103**

UNPACKING

Unpack the product and check for any damage incurred during transit. This should be reported to the responsible carrier, railway or postal authority, and a request for a damage report should be made.



THESE INSTRUCTIONS MUST BE FOLLOWED FOR US TO GUARANTEE OUR FULL SUPPORT OF YOUR CLAIM FOR PROTECTING AGAINST LOSS FROM CONCEALED DAMAGE. THE FORM FOR FILING SUCH A CLAIM WILL BE PROVIDED BY THE CARRIER.

PRODUCT DESCRIPTION

- These circulators are suitable for temperature application in a water medium.
- The main functional elements are the heater, circulation pump, and the temperature controller.
- Ensure that before switching on the main supply that the liquid in the bath is water or a medium with approximately the same viscosity.

GENERAL INSTALLATION AND OPERATION INFORMATION

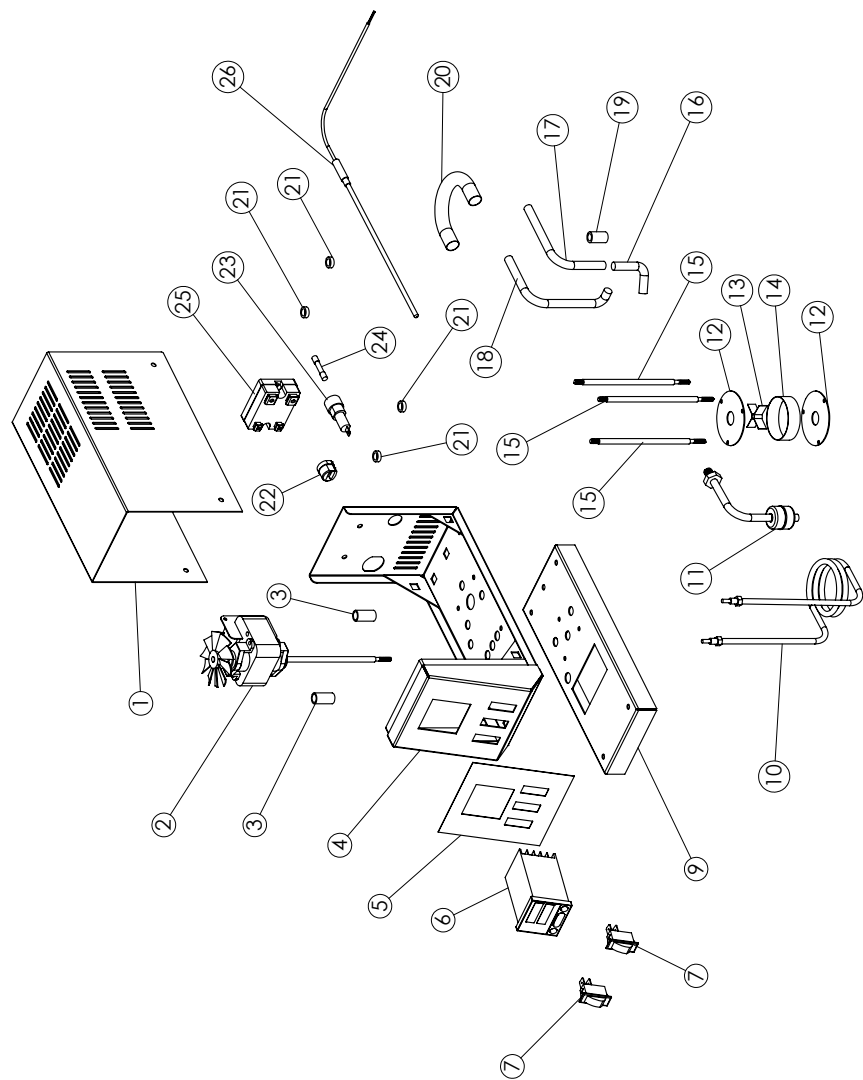
- Ensure that the power plug of the unit is plugged into power socket.
- It is recommended that the circulator be used with the relevant waterbath lid.
- Ensure that the waterbath is filled to the correct level with the required liquid (minimum 20mm above element coil). The unit is fitted with a level control switch, that will shut down the unit if the water level is too low.
- The circulator is designed to function on the right hand side of the bath when viewed from the front. This is critical due to the fact that this ensures that the circulator receives adequate ventilation.

MODEL: CIRCULATOR MODEL CODE :103 R01

Part No.	Description
1	COVER PLATE
2	CIRCULATING MOTOR ASSEMBLY
3	MOTOR MOUNTING BUSH
4	CHASSIS
5	FACIA
6	TEMPERATURE CONTROLLER
7	ILLUMINATED ROCKER SWITCH
9	BRIDGE PLATE
10	HEATING ELEMENT
11	LEVEL SWITCH
12	PUMP HOUSING COVER
13	IMPELLER
14	PUMP HOUSING BODY
15	PUMP HOUSING STUDS
16	EXTERNAL PUMP CONNECTION PART A
17	EXTERNAL PUMP CONNECTION PART B
18	EXTERNAL PUMP CONNECTION PART C
19	EXTERNAL PUMP BRIDGE PART A
20	EXTERNAL PUMP BRIDGE PART B
21	MOUNTING BUSH
22	CABLE GRIP
23	FUSE HOLDER
24	FUSE
25	SOLID STATE RELAY
26	PT 100 TEMPERATURE SENSOR

EXPLODED DIAGRAM DIGITAL CIRCULATOR

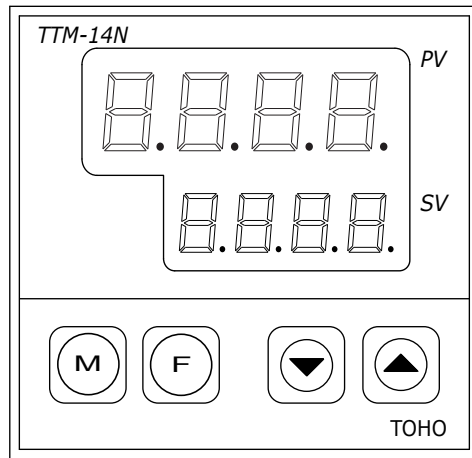
MODEL: 103



- Check that the main voltage complies with the rated 220 – 240 VAC 50 Hz supply voltage before plugging into power supply.
- Switch the "MAINS" rocker switch on the control panel. The rocker switch will illuminate and the unit will begin to circulate the water.
- Switch the "HEAT" rocker switch will result in the switch illuminating and this in turn activates the heater circuit.
- The units are designed to operate for lengthy periods.
- When switching off the unit, it is advisable to switch off the rocker switch "HEAT" first. Leave the unit circulating for approximately five minutes and then switch off at rocker switch marked "MAINS".
- The unit is fitted with a float switch which will turn the heater element off in the event the heating medium evaporates or low water conditions, when levels drop below the heating coil.

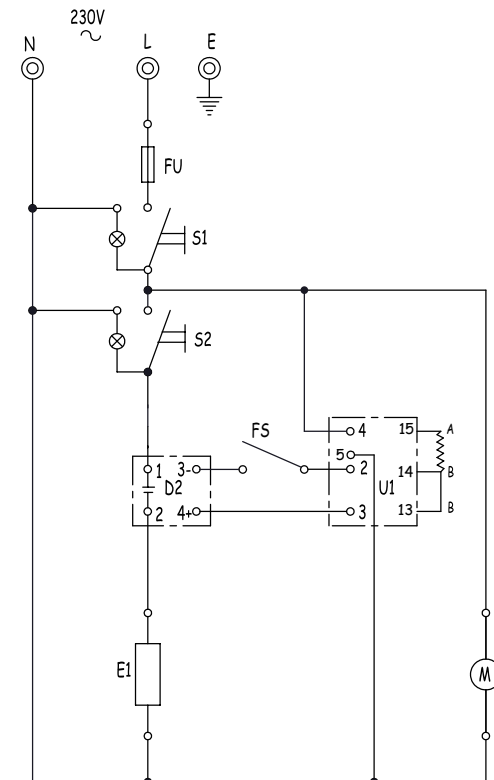
OPERATING INSTRUCTIONS OF ELECTRONIC TEMPERATURE CONTROLLER

1. The temperature controller has four buttons on the front face. These are used to set the required temperature, initiate Auto-Tuning, and enter any adjustments to the program.
2. To set the required temperature, ensure that the unit is connected and switched "ON" in the appropriate manner.
3. The top display (white) shows the actual temperature (PV) in the unit, the bottom display (green) is the setting temperature (SV) and must be adjusted to the required temperature. To adjust the setting, press the function "F" button. This action will start one of the digits in the lower display flashing. By touching this button again, the flashing will move to the left. Once the flashing green display is on the number that needs to change, use the UP/DOWN buttons to attain the required settings.
4. By moving the flashing digit left or right the desired temperature required can be set. Once the correct temperature has been entered, press Mode "M" button to enter the setting.



WIRING DIAGRAM MODEL: DIGITAL CIRCULATOR MODEL CODE: 103

LEGEND	DESCRIPTION	PART NUMBER
S1/S2	ILLUMINATED ROCKER SWITCH	1-17TAF
FS	FLOAT SWITCH	1-FS-103
U1	DIGITAL TEMPERATURE CONTROLLER	1-DC-TTmi4N
D2	SOLID STATE RELAY	1-SSR-40A
M	MOTOR	1-MOT-270
E1	ELEMENT 1400W/230V	5-1200W-103
FU	FUSE HOLDER WITH 15AMP FUSE	1-15-FU/1-15-FH



ELECTRICAL AND TECHNICAL INFORMATION

MODEL	DESCRIPTION	VOLTS (V/Hz)	POWER (WATTS)	PUMP CAPACITY LT/MIN	TEMPERATURE ACCURACY
103	DIGITAL CIRCULATOR	230/50	1400	6	±0.3°C



THE CONTROL COMPARTMENT OF THIS UNIT CONTAINS DANGEROUS VOLTAGES. MAINTENANCE AND SERVICING REQUIRING THE REMOVAL OF ANY PANELS OR COVERS SHOULD BE DONE BY QUALIFIED SERVICE PERSONNEL ONLY.



IT IS ESSENTIAL TO MAKE SURE THAT THE INCOMING VOLTAGE IS THE SAME AS THE RATED VOLTAGE OF THE OF THE UNIT AS FOUND ON THE SERIAL PLATE. THE SERIAL PLATE IS LOCATED AT THE REAR OF THE UNIT ADJACENT TO THE INCOMING CABLE ENTRY.



Burn Hazard.

Do not touch hot, liquid or heating surfaces while equipment is heating or operating

Hot surfaces and liquid can burn skin. Allow the hot surfaces to cool before handling

CLEANING

1. Always ensure that the unit is disconnected from the main power supply before cleaning.
2. This unit should not be cleaned with a water jet or immersed in water. Use only a damp cloth or sponge dipped in soapy water.
3. Wipe off the unit with a dry cloth and wait at least a half an hour before re-connecting to the main power outlet.



CLEAN THE STAINLESS STEEL PARTS WITH WATER AND SOAP. AVOID THE USE OF DETERGENTS CONTAINING ABRASIVE SUBSTANCES. ALWAYS RINSE WELL AND DRY CAREFULLY AFTER CLEANING. DO NOT USE PRODUCTS CONTAINING AGGRESSIVE CHEMICALS, ACIDS OR PRODUCTS WITH CHLORINE TO CLEAN THE STAINLESS STEEL EVEN IF DILUTED



WARNING

Electric Shock Hazard.

Keep water and other liquids from entering the inside of the equipment. Liquid inside the equipment could cause an electrical shock.

Do not spray water or cleaning products. Liquid could contact the electrical components and cause a short circuit or an electrical shock. Do not use equipment if power cord is damaged or has been modified.

SAFETY

READ ALL INSTRUCTIONS BEFORE USE. FAILURE TO FOLLOW THESE PRECAUTIONS COULD RESULT IN INJURY TO YOURSELF AND OTHERS

1. Use the circulator on an individual 15A mains outlet only. **DO NOT OVERLOAD THE CIRCUIT.**
2. Ensure that the equipment and the power supply cord does not come into contact with hot surfaces.
3. This unit is only to be used by properly trained laboratory staff.
4. If the supply cord is damaged, it must be replaced with a new cord assembly available from the suppliers agent.
5. Use only earthed outlets matching the serial plate voltage.
6. Have equipment installed by a qualified personnel in accordance with local codes and ordinances.
7. Use equipment in a flat level position.
8. Do not operate if equipment has been damaged or is malfunctioning in any way.
9. These units are designed to run only on alternating current (A.C.) **DO NOT CONNECT TO DIRECT CURRENT (D.C.)**

POSITIONING DIAGRAM DIGITAL CIRCULATOR MODEL 103

