

Julabo Circulator (HE Style)



Supplement to Getting Started Guides

Revision B
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Table of Contents

Important: TA Instruments Manual Supplement 3

Introduction 5

Entering the Settings 5

 Using the Membrane Keypad 6

 Menu Settings 6

 Setting the Excess Temperature Protection 8

Main Electronics to Host Computer 9

 Main Electronics to Julabo Computer-Controlled Circulator 9

Introduction

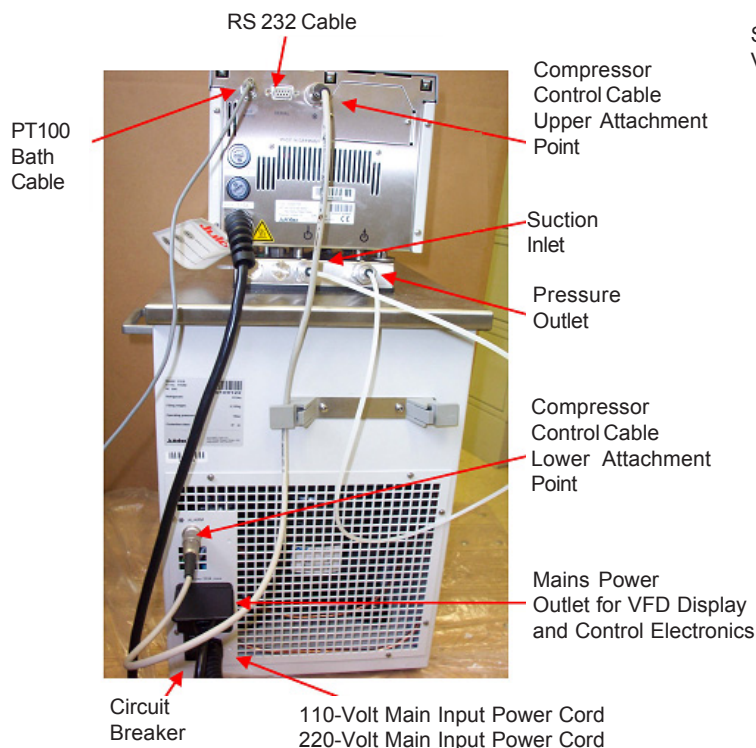
This document covers the Julabo circulator control HE style head. The control head can be used on a TA Instruments AR 550, AR 1000, or CSAII. It incorporates a VFD (vacuum fluorescent display) and new parameter settings that must be entered via the keypad. The HE head also has a new four-stage pump.

Entering the Settings

There are seven menus that must be selected from the membrane keypad, allowing you to enter the necessary settings for the AR series instruments.

Follow these instructions:

1. Using the rocker switch at the top right hand corner of the control head, power up the display. Do not activate the pump at this time. The information shown in the figure to the right must appear on the display upon startup.

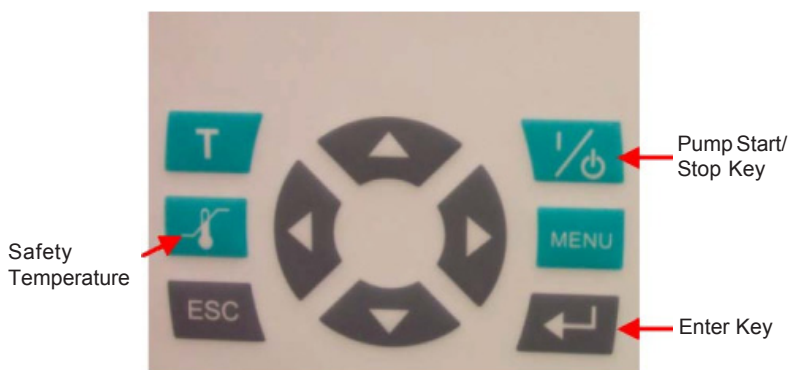


2. Confirm that the correct hose and cables have been installed at the back panel of the Julabo before you enter the configuration values. See the figure to the left. **You must have the PT 100 cable installed before you can set the configuration.** The RS232 Cable can be attached or disconnected; it does not matter.

Using the Membrane Keypad

The following list describes the functioning of the keypad shown in the figure to the right:

- MENU Key: Used to enter the various menus.
- ENTER Key: Used to save entered parameters.
- ESC Key: Used to proceed to the next menu.
- UP/DOWN Arrow Keys: Used to select values.
- LEFT/RIGHT Arrow Keys: Used to change the value of a number. Press the LEFT or RIGHT arrow keys until the desired digit is activated then press the UP or DOWN arrow keys until the desired number is reached.



NOTE: Please note that if you enter the values as prescribed below and then for any reason go back and change any one parameter, all the previous PID settings will be altered. This applies to parameters in the Control Section only.

Menu Settings

Select the following menu settings using the keys as instructed above:

Pump: Adjustable Pump Capacity

Pump Speed: 2

Control: Intelligent Cascade Control Parameters

Control: External (Note: must have pt100 cable connected between bath and circulator. If not display will default to Internal Control.)

	110v/120v	220/240v
Self-Tuning:	Off	Off
Cospeed:	0	0
Control:	PID values	PID values
XP:	0.6	0.5
TN:	70	90
TV:	7	24
XPU:	4.5 Default	4.5 Default

Config: Configuration of the Circulator

Set: Serial
A-start: off
Off Mode: Pump off
Reset: no (to restore defaults select yes and then enter)
Actvar: control
Time/Date: Setting time and date

Serial: Communication Protocol

Baudrate: 4800
Parity: Even
Handshake: Hard

Limits: Temperature and Capacity Limits

Set Max: 100°C (these values are for glycol/water mix
Set Min: 5°C Silicone oils will require a different set)
Heat Max: 100%
Cool Max: 100%
Internal Max: 100
Internal Min: 0
Band High: 200 (default)
Band Low: 200 (default)

Program: Integrated Programmer (leave as factory defaults)

PS Step: 1
PS Runs: 1
PS Go: Now
P Time: not required
P Date: not required
PS End: SETP/STBY
PE Del: No

Adjust: ATC Automatic Calibration of Prt (leave as factory defaults)

ATC Sen: Int
ATC Stat: Off
C ART: 1 point
T Temp: 1
C Temp: 1

Setting the Excess Temperature Protection

To complete the configuration and installation of the Julabo FS18 HE, you must set the Excess Temperature Protection. This setting is independent of the configuration values that have already been entered. When the bath temperature reaches this excess temperature, both the pump and heater shut down.

To set the excess temperature follow these steps:

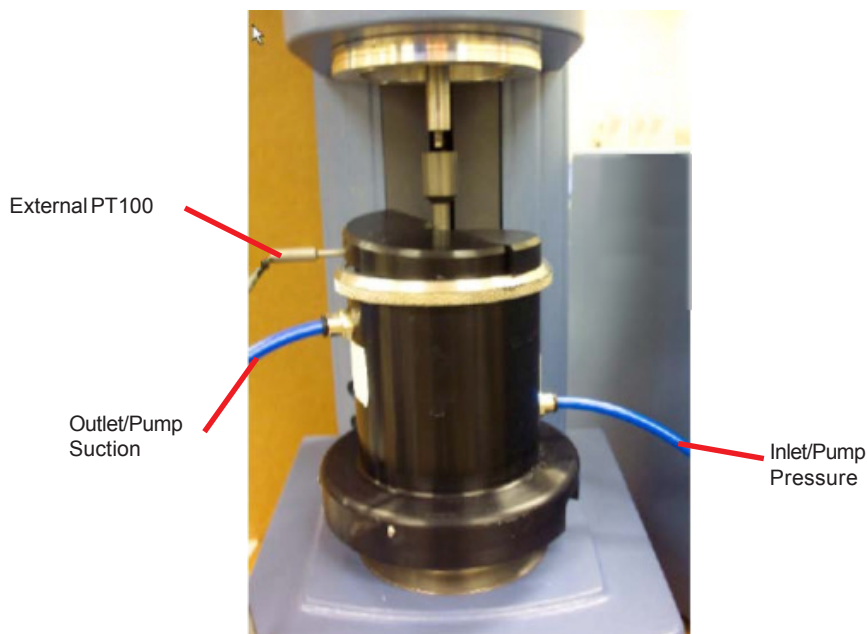
1. Go to the keypad and push the **Safety Temperature** key and hold it down until "SAFETMP" is displayed.
2. Adjust the dial control located just below the on/off rocker switch for the correct Over Temp setting as viewed on the VF display. It is recommended to set the Over Temp to a value of 5-10°C above the maximum working temperature set point.

NOTE: If the circulator does not accept temperature commands, but is communicating with the Julabo (No beeps present), the Julabo is set for T3, or T2 and **not** T1 as required. To check the control temperature, you must program the circulator so it is in manual mode. To accomplish this:

- (1) Access the **Configuration** menu and change the **Set** to "**Key**" instead of "Serial."
- (2) Press Enter to save the change and press Escape to exit back to the normal display. The R above Off on the VFD should disappear, which indicates the circulator is now in manual mode.
- (3) Select T on the keypad, SETP=1 should be displayed on the VFD. If SETP is set for 2 or 3, select the T key until SETP=1 is displayed.
- (4) Access the Configuration menu again, and change the **Set** back to "**Serial**." This will allow you to command a temperature via the instrument.

3. Make sure you install the outlet and inlet hoses to the Concentric Cylinder assembly for the AR550/1000 in the proper manner. The figure to the right shows the proper hose connections. If the hoses are reversed improper cooling/heating will result.

NOTE: The AR 550 and AR 1000 instruments require two different RS232 cables.



Main Electronics to Host Computer

To connect the main electronics to the host computer, use part number 552000.001, Female-to-Female, DB9 Serial Cable. It is a universal cable used in both the UK and the US. The pin out is just what you would expect for a serial cable.

1-----	1
2-----	3
3-----	2
4 open	
5-----	5
6 open	
7-----	8
8-----	7
9 open	
10 shield	

If necessary, these cables can be purchased directly from Belkin, in 10-foot lengths. Belkin part number is F3B207-10.

Main Electronics to Julabo Computer-Controlled Circulator

Use the same pin out as above, except these are Male-to-Female DB9 Cables. Part Number 250035.001 comes with 110V/60Hz units from the US, while Part Number 552011.001 comes with 220V/50Hz units from the UK.

Be aware that the DB9 Male-to-Female black Event cable connecting the AR electronics to the test station drain/fill box for the asphalt bath is NOT an RS232 cable. It is a custom cable with only two conductors connected to the DB9 ends (pins 6 and 8).

NOTE: The ARES COM cables are not the same RS232 cables; they have straight through connections and cannot be substituted for the AR COM cables above.



Event Cable
for Asphalt
Bath

Host PC to
Rheometer Cable

Julabo to
Rheometer Cable

