

## HL-4 Heating Circulator

### Superior models for most demanding applications +20 °C ... +300 °C

JULABO constant temperature circulators with a stainless steel bath tank for internal and external temperature control tasks. They are designed primarily for external temperature control. They have elevated performance for controlling the temperature of large or open systems. Smaller objects may be inserted directly into the circulator's bath at the same time. Models of the TopTech and HighTech series are available with a variety of bath sizes and functional characteristics. Bath covers and a variety of bath inserts for laboratory glassware are available as accessories



Made  
in Germany

### Your advantages

- VFD COMFORT DISPLAY
- LCD DIALOG DISPLAY backlit for convenient interactive operation
- Keypad for setpoints, warning/safety values and menu functions
- ICC (Intelligent Cascade Control), self-optimizing temperature control
- TCF Temperature Control Features to optimize the control behaviour
- ATC3 3-Point-Calibration
- Pt100 External sensor connection for measurement and control
- SMART PUMP, electronically adjustable pump stages
- Early warning system for low liquid level (DBGM 203 06 059.8)
- Adjustable high temperature cut-out, visible via display
- RS232/RS485 interface for online communication
- Integrated programmer for 6 x 60 program steps
- Connections for solenoid valve and HSP booster pump

### Technical Data

|  |                                    |
|--|------------------------------------|
| Order No.                                  | 9312504                            |
| Model series                               | HighTech                           |
| Category                                   | Heating Circulators                |
| Working temperature range (°C)             | +20 ... +250                       |
| Temperature stability (°C)                 | ±0.01                              |
| Setting / display resolution               | 0.01 °C                            |
| Integrated programmer                      | 6x60 steps                         |
| Temperature Display                        | VFD, LCD                           |
| Heating capacity (kW)                      | 1                                  |
| Pump capacity flow rate (l/min)            | 22-26                              |
| Pump capacity flow pressure (psi)          | 5.8-10.2                           |
| Pump capacity flow suction (psi)           | 2.9-5.8                            |
| Bath opening / bath depth (W x L / D inch) | 5.1 x 5.9 / 5.9                    |
| Pump connections                           | M16x1                              |
| Barbed fittings diameter (inner dia. / mm) | 8 / 12                             |
| Filling volume liters                      | 4.5                                |
| External Pt100 sensor connection           | integrated                         |
| Digital interface                          | RS232, RS485<br>Optional: Profibus |

|  |   |
|--|---|
| Ambient temperature                    | 5...40 °C   |
| Dimensions W x L x H (inch)            | 8.3 x 16.5 x 15.7   |
| Weight (LBS)                           | 24.2  |
| Classification according to DIN12876-1 | Classification III (FL)   |
| Included with each unit                | 2 each barbed fittings for tubing 8 and 12 mm inner dia. (pump connections M16x1 female). |
| Cooling coil                           | integrated  |
| Bath tank                              | Stainless steel   |
| Power requirement V / Hz / A           | 115/60/10   |
| Available voltage versions             | 230 V / 50-60 Hz<br>100-115 V / 50-60 Hz  |

Built-in cooling coil for tap water connection for temperature applications below or near ambient temperatures are integrated.

## Characteristics

### Display



#### A perfect view

Ample, easy to read VFD Comfort display for simultaneous display of 3 values, warning functions, high temperature cut-off, pump stages (resolution 0.01 °C)



#### Additional plain text information

Comfortable LCD dialog display for interactive operation with plain text display



#### Pump stage and liquid level

Backlit indicator for selected pump stages and filling volume on Presto® PLUS, Magnum 91 & Forte HT

### Operation



#### Comfortable and detailed

Comfortable keypad with additional menu functions for pump stages, calibration, control parameters, programmer, warnings, etc.

### Temperature Control



#### For perfect results

'Intelligent Cascade Control', automatic & self optimizing adjustment of PID control parameters, temperature stability ±0.005 °C internal, <±0.05 °C external



#### Full control

'Temperature Control Features' for individual optimization, access to all important control parameters, additional settings for band limit, limits, Co-Speedfactor etc.



#### Highest measuring accuracy

'Absolute Temperature Calibration' for manual compensation of a temperature difference, 3-point calibration

### Technical Features



#### Clever pump system

Reliable and consistent pump capacity, electronically adjustable pump stages



#### Control from the external application

External Pt100 sensor connection for precise measurement and control directly in the external application



#### Connection compliant to standard

RS232/RS485 dual-interface for serial data transmission according to EIA-485 industry standard (2-wire bus technology), upgradable with Profibus DP



#### Optimal program control

For the execution of time and temperature dependant profiles, 6 temperature profiles with 60 steps max., with real time clock



#### Automatic control of operating time

Electronic countdown-timer function for timer-programmed unit shut-down, standby mode after programmed time expires

### Warning & Safety Functions



#### Early warning system for low liquid level

Maximum safety for applications, optical and audible alarm, allows user to refill bath fluid before the unit shuts down



#### Early warning system for high/low temperature limits

Maximum safety for applications, optical and audible alarm, convertible to automated cut-off function



#### Enhanced protective functions

Maximum safety, adjustable high temperature cut-off or dry-running protection, additional display of setpoints permits easy and precise adjustments



#### For flammable bath fluids

Classification III (FL) according to DIN 12876-1

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