

## F34-ME Refrigerated/Heating Circulator

### The advanced all-rounder with a Pt100 external sensor connection

JULABO Refrigerated and Heating Circulators are suitable for temperature application to external systems with simultaneous operation in the bath tank. Models in different performance classes are available. The units provide high heating/cooling capacities to ensure rapid heat-up and cool-down times. With 'Active Cooling Control' to +200 °C (not on ED models). 'FP' models offer proportional cooling control to ensure energy-saving performance and to reduce heat generation to the environment. Convenient cleaning of dust by removable venting grid. Some models have a handle or castors to allow easy transport. All models provide a drain port on the front for conveniently draining the bath fluid. Typical applications: Temperature applications to external, closed systems, such as for example photometers, refractometers, viscometers, etc. For simultaneous application to small objects in the circulator bath.



**Made**  
in Germany

### Your advantages

- VFD COMFORT DISPLAY
- Keypad for setpoints, warning/safety values and menu functions
- PID3 cascade temperature control
- 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 interface for online communication
- Integrated programmer for 10 program steps
- Active Cooling Control

### Technical Data

|  |                                    |      |           |
|--|------------------------------------|------|-----------|
| Order No.                                  | 9162634                            |      |           |
| Model series                               | TopTech                            |      |           |
| Category                                   | Refrigerated - Heating Circulators |      |           |
| Working temperature range (°C)             | -30 ... +150                       |      |           |
| Temperature control                        | PID, cascade                       |      |           |
| Temperature stability (°C)                 | ±0.01                              |      |           |
| Setting / display resolution               | 0.01 °C                            |      |           |
| Integrated programmer                      | 1x10 steps                         |      |           |
| Temperature Display                        | VFD                                |      |           |
| Heating capacity (kW)                      | 1                                  |      |           |
| Cooling capacity (Medium Ethanol)          | °C                                 | 20   | 0 -20     |
|  | kW                                 | 0.45 | 0.32 0.14 |
| Pump capacity flow rate (l/min)            | 11-16                              |      |           |
| Pump capacity flow pressure (psi)          | 3.3-6.5                            |      |           |
| Bath opening / bath depth (W x L / D inch) | 9.4 x 11.8 / 5.9                   |      |           |

|  |   |
|--|---|
| Pump connections                           | M10x1   |
| Barbed fittings diameter (inner dia. / mm) | 8 / 10  |
| Filling volume liters                      | 20  |
| External Pt100 sensor connection           | integrated  |
| Digital interface                          | RS232<br>Optional: Profibus   |
| Ambient temperature                        | 5...40 °C   |
| Dimensions W x L x H (inch)                | 15 x 22.8 x 24.4  |
| Weight (LBS)                               | 92  |
| Classification according to DIN12876-1     | Classification III (FL)   |
| Included with each unit                    | 2 barbed fittings suitable for tubing 8 and 10 mm inner dia.<br>(pump connections M10x1 female) |
| Cooling of compressor                      | Air   |
| Power requirement V / Hz / A               | 115/60/14   |
| Available voltage versions                 | 230 V / 50 Hz<br>115 V / 60 Hz<br>230 V / 60 Hz   |

## 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)



#### 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 higher demands

PID Temperature control with drift compensation and adjustable parameters, improved temperature stability for external applications, temperature stability  $\pm 0.01$  °C internal,  $\pm 0.1$  °C external



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

### Refrigeration Technology



#### Consistent cooling capacity

Easily removable venting grid for quick and easy cleaning



#### 100 % Cooling capacity

'Active Cooling Control' for cooling available throughout the entire working temperature range, fast cool-down even at higher temperatures

### 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



#### Serial connection

RS232 interface for PC connection, e.g. for data communication and recording of measured values



#### Easy program control

Integrated programmer for the execution of time and temperature dependant profiles, 1 temperature profile with 10 steps max., with real time clock

### 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