



BTC-LAB-SERIES: THE FIRST CHOICE FOR TEMPERATURE CONTROLLERS IN THE LAB

The new gold-standard for highest-precision temperature control in the lab and in the field.

www.belektronig.de

FLEXIBLE TEMPERATURE CONTROL UP TO 0.001°C

Made in
Germany



High-Precision Temperature Controllers Made in Germany

The BELEKTRONIG benchtop temperature controllers of the HAT-Control series serve the purpose of professional control of heating or Peltier elements. Their up to 0.001°C accurate temperature measurement in combination with the extended PID algorithm and the high-resolution power output allows precise adjustment even of the smallest temperature deviations. All units of the series are built compact and robust, and offer high operating comfort and numerous additional functions.

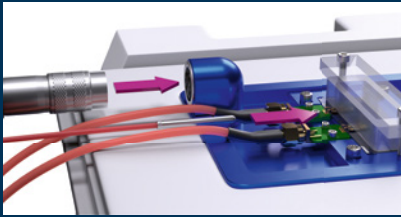
- ✓ **Temperature resolution: 0.1° C, 0.01° C, 0.001° C**
- ✓ **For the lab and in the field**
- ✓ **Fan control**
- ✓ **USB connection**
- ✓ **Upgradeable**
- ✓ **Including PC software BTC Soft**

BTC Soft: Measuring, Monitoring and Recording Temperature Curves

The PC software BTC Soft enables the operation of the BELEKTRONIG benchtop temperature controller via the USB interface of the computer. Thanks to plug-and-play functionality, your controllers are immediately ready for use - without any extra installation. The graphical user interface shows the most important parameters of the running operation and allows intuitive reading and setting of all available functions e.g. PID parameters or temperature limits. The program is included in the standard scope of delivery of our controllers and is available in the latest updated version via download link. The Pro version with extended functionality can be ordered additionally.

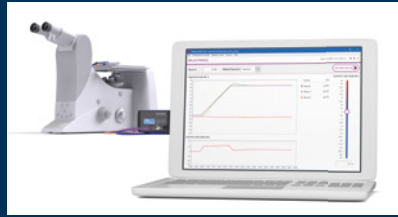


Connected and Ready to Use in Three Simple Steps



Connect

Connect the controller and the equipment to be controlled using the connection cable.



Configure

Set the controller settings (PID parameters, limit values, fan settings, data acquisition, operating mode) using the PC software or your own code.



Control

The controller now automatically performs the precision control of the temperature of the setup.

We Develop Customer-specific Solutions - also for your Research Setup

We start where standard solutions do not help. The development of variable, individual solutions is part of our daily business: from the adaptation and new development of digital PID temperature controllers up to conception and realization of complete measuring and analysis set-ups with precise temperature control down to the millikelvin-area. We offer the following services for temperature control:

- › Adapt the controller firmware to your requirements
- › Design and feasibility studies
- › Development of individual built-in or lab controllers
- › Development, design and manufacture of heatable platforms and devices
- › Dimensioning of heating and Peltier elements
- › Design and analyzing of system plant model

Inverted Microscope

Optical investigation of e.g. biological samples

Development of Equipment to be Temperature Controlled

Realized to customer needs

Benchtop Temperature Controller

Highest-precision temperature control

Connecting Cables

Connecting the temperature controller with the equipment to be controlled



Solution example: Temperature-controlled sensor platform for inverse microscope

Technical Data for Benchtop Temperature Controller BTC-Series

Temperature Measurement

- › Measuring range: -200...+800 °C
- › Resolution: 0.1 °C, 0.01 °C, 0.001 °C
- › Sampling rate: 10 Hz
- › Temperature sensors: PT100, PT1000, (NTC, PTC on request)
- › Accuracy of measurement: ±0.05 °C
- › Temperature coefficient: 0.05 mK/K
- › Calibration possibility for sensors

Temperature Control

- › Digital PID control algorithm
- › Adjustable PID parameter
- › Adjustable temperature limits
- › Automated switch off in case of errors

Modes of Operation for Peltier elements

- › [1] Manual control
- › [2] Heating operation only
- › [3] Cooling operation only
- › [4] Heating and cooling

Modes of Operation for heating elements

- › [1] Manual control
- › [2] Heating operation

Control Output

- › DC control output with adjustable voltage: -27...27V, max. 10 A
- › Adjustable voltage limits e.g. to maximal 12V, 24V or similar
- › Adjustable current limits e.g. to maximal 7.8 A or similar
- › On request: medical approved power supply

Current Measurement on Control Output

- › Resolution: 0.3 A (active with 3.4 % of output voltage)

Fan Control Output

- › DC Output: 0...12V DC, maximal 300 mA
- › Modes: [1] Manual control, [2] Associated with temperature control output

Interface

- › USB 2.0 including drivers for virtual COM port
- › On request: RS232

Software Control

- › PC software BTC Soft
- › LabView VIs
- › ASCII command set

Dimensions and Conditions of Operation

- › Dimensions (L x W x H): 226 x 172 x 91 mm³
- › Weight: 3.2 kg
- › Operating temperature: 10...45 °C
- › Relative humidity: 0...80 %, not condensating

Scope of Delivery

- › Benchtop temperature controller incl. power and USB cable
- › Matching connectors 8polar (if no connecting cables ordered)
- › PC software

Configurations

BTC-LAB-...	A10	A20	A100	A200	A1000	A2000
Temperature resolution [°C] / Control accuracy [°C]	0.1 / ± 0.1		0.01 / ±0.01		0.001 / ±0.003	
Number of temperature sensors / Number of fan outputs	1	2	1	2	1	2

Temperature controllers with comparable functionality are also available as built-in devices.



Learn more about the technical details of our devices and easily request a quote for your individual temperature control needs.

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