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KRÜSS

CIRCULATION THERMOSTATS

PELTIER TEMPERATURED - SMALL AND EXTREMLY QUIET

MADE IN GERMANY

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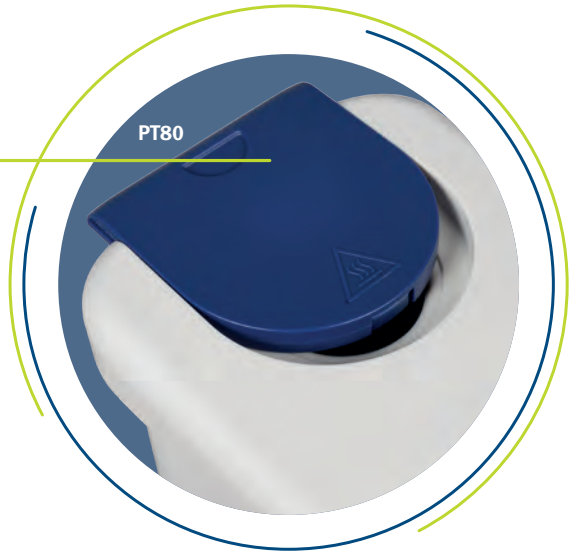
PT80 CIRCULATION THERMOSTAT



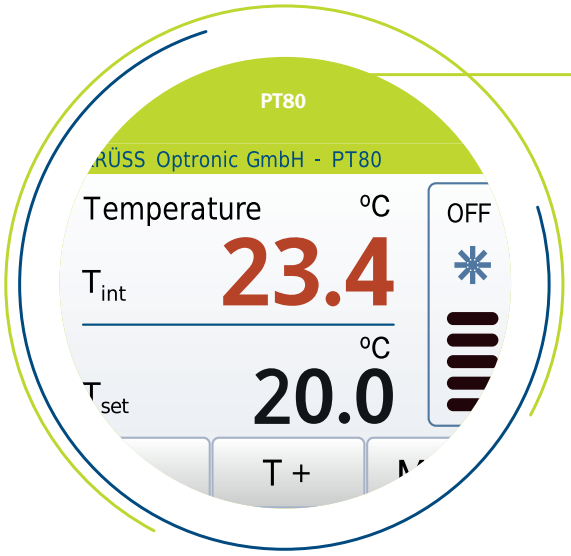
PT80

The PT80 circulation thermostat is an extremely quiet, energy-efficient and handy device that has been specially developed for small temperature control tasks in the laboratory. Unlike classic compressor-driven thermostats, the PT80 uses modern Peltier technology to operate thermoelectrically. The environmentally friendly technology ensures extremely quiet and low-vibration operation, 50% lower energy consumption and completely eliminates the need for refrigerants. Yet rapid temperature control in a temperature range from 5 °C to 80 °C is still possible, not least due to the low filling volume of only 250 ml. With an accuracy of ±0.1 °C, the PT80 is ideally suited to high laboratory standards for the temperature control of polarimeters and refractometers. The PT80 is also very well equipped for efficient and environmentally friendly cooling of condensers (e.g. Liebig or reflux condensers) in thermal separation processes on a laboratory scale.

KEY DATA	
TEMP. CONTROL RANGE	5 °C – 80 °C
ACCURACY OF T. CONTROL	±0.1 °C
TEMP. CONTROL RESOLUTION	0.1 °C
AMBIENT TEMPERATURE RANGE	5 °C – 40 °C
HEATING CAPACITY	120 W
COOLING CAPACITY AT 20 °C	40 W
PUMP PRESSURE	110 mbar
PUMP CAPACITY	60 l/h
FILLING VOLUME	250 ml
IP CODE	IP21
CLASS OF PROTECTION (DIN EN 61140)	III
CLASSIFICATION (DIN 12876-1)	I; non-flammable liquids
ELECTRICAL DATA	100-240 VAC, 2,5 A | 50/60 Hz

YOUR BENEFITS

- Circulation thermostat with Peltier technology
- Rapid temperature control from 5 °C to 80 °C
- Temperature accuracy of ±0.1 °C
- Extremely quiet and low-vibration operation
- Environmentally friendly, due to 50% lower energy consumption and elimination of refrigerants
- Suitable for operation with non-flammable liquids (water or water/glycol mixture)
- Resistive touchscreen display
- Easy-to-understand and intuitive menu navigation
- Standard RS-232 interface for PC communication
- PT80 control by P8000 series polarimeter



DIGITAL FUNCTIONS

The easy-to-understand TFT display enables all relevant information to be clearly displayed. The temperature of the PT80 can be individually adjusted via a user-friendly touch-screen. The easily accessible functions and intuitive user guidance in the user menu ensure convenient handling. The circulation thermostat can be easily controlled with the serial RS-232 interface. This enables effective data exchange as well as remote control via PC or direct control via the user interface of our P8000 series polarimeters. PC networking also provides documentation of all relevant settings. The temperature of the PT80, for example, can be queried with the simplest programs. These networking functions even make the PT80 suitable for automated temperature control in the environment of laboratory 4.0 applications.

KEY DATA	
DISPLAY TYPE	RGB TFT display
DISPLAY RESOLUTION	320 x 240 pixels
DISPLAY DIMENSIONS (W X H)	72.4 mm x 54.7 mm
CONTROL	Resistive touchscreen (pressure sensor technology)
ELECTRONIC INTERFACE	RS-232 interface
DEVICE DIMENSIONS (W x H x D)	170 mm x 225 mm x 244 mm
DEVICE WEIGHT	2.7 kg (without mains adapter and mains cable)

PT31 CIRCULATION THERMOSTAT

PT31

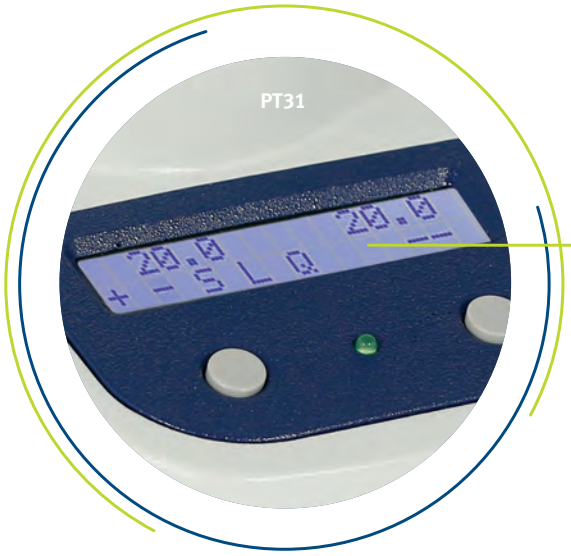
The PT31 circulation thermostat is equipped with high-performance functions. The 1.5 kg lightweight device is ideally suited for applications requiring a temperature range at a constant level. The proven Peltier technology offers process-reliable temperature control in the range from 8 °C to 35 °C. The accuracy of temperature control is ±0.2 °C. The robust locking mechanism of the PT31 provides a sturdy connection and ensures constant temperature control of the medium. The compact and sturdy design does not require much space and can be placed anywhere in the laboratory.

KEY DATA	
TEMP. CONTROL RANGE	8 °C – 35 °C
ACCURACY OF T. CONTROL	±0.2 °C
TEMP. CONTROL RESOLUTION	0.1 °C
AMBIENT TEMPERATURE RANGE	5 °C – 40 °C
HEATING CAPACITY	30 W
COOLING CAPACITY AT 20 °C	20 W
PUMP PRESSURE	20 mbar
PUMP CAPACITY	20 l/h
FILLING VOLUME	100 ml
IP CODE	IP21
CLASS OF PROTECTION (DIN EN 61140)	III
CLASSIFICATION (DIN 12876-1)	I; non-flammable liquids
ELECTRICAL DATA	100-240 VAC, 1.3 A | 50/60 Hz

YOUR BENEFITS

- Temperature control using Peltier technology
- Temperature range from 5 °C to 35 °C
- Temperature accuracy of ±0.2 °C
- Space-saving, sturdy design
- Suitable for operation with non-flammable liquids (water or water/glycol mixture)
- Bright, easy-to-read LCD matrix display
- Sophisticated, easily accessible operating elements
- Convenient connection with P8000 series polarimeters
- Simple and plainly structured functions

PT31 LCD-MATRIX DISPLAY



OPERATING ELEMENTS

The PT31 has a quick and easy to achieve operational readiness. The sophisticated operating elements are easily accessible and allow the temperature to be set with just a few inputs. A menu with easy-to-understand navigation is used for set-up.
The LCD matrix has a bright, easy-to-read display. Temperature settings as well as heating and cooling functions are displayed in a clearly arranged manner.
The interface facilitates convenient control with our P8000 series polarimeters.

KEY DATA	
DISPLAY TYPE	LCD matrix display
DISPLAY RESOLUTION	2 rows of 16 columns each
DISPLAY DIMENSIONS (W X H)	57.7 mm x 11.8 mm
CONTROL	Selection keys
ELECTRONIC INTERFACE	RS-232 interface
DEVICE DIMENSIONS (W x H x D)	108 mm x 199 mm x 145 mm
DEVICE WEIGHT	1.5 kg (without mains adapter and mains cable)

CIRCULATION THERMOSTATS, APPLICATIONS AND ACCESSORIES AT A GLANCE

COOLING OF CONDENSORS ON A LABORATORY SCALE

Distilling links or reflux condensers are used in many thermal separation processes. On a laboratory scale, the condensers are usually cooled by tap water which is simply passed through a Liebig cooler, for example, in accordance with the counter-current principle. The cooling capacity of the flowing tap water is often adequate enough, but the water consumption of the condensers shown in the image (Lenz® laboratory glass) is quite high at 70 litres per hour. The required cooling capacity can be supplied with a PT80 in a significantly more environmentally friendly and efficient way. The required amount of water can be reduced to 500 ml per year and the cooling capacity can be flexibly adapted to the particular requirement.

PT80 AND PT31 APPLICATIONS

- Temperature control of small sample quantities in analysis laboratories, chemical laboratories or life science applications
- Temperature control of refractometers
- Temperature control of polarimeters
- Temperature control of viscosimeters
- Temperature control of cell changers in UV/VIS devices

APPLICATION: TEMPERATURE CONTROL OF ABBE REFRACTOMETERS

The PT80 and PT31 circulation thermostats are often used for the sample temperature control of refractometers, whereby the temperature control of Abbe refractometers is particularly popular. Abbe refractometers can therefore achieve highly accurate and extremely reproducible measurement results completely independent of the ambient temperatures. The more powerful PT80 guarantees fast and stable temperature control of the measurement sample even in laboratories without air-conditioning. Both circulation thermostats are extremely small and can be very easily connected to all water-temperable refractometers.

AR2008 *with circulation thermostat* **PT80**

APPLICATION: TEMPERATURE CONTROL OF POLARIMETERS

When used in combination with polarimeters, the PT80 or PT31 circulation thermostats ensure uniform temperature control of the samples to be measured. This enables high-precision and reproducible measurements, such as those prescribed by different standards in the pharmaceutical industry at 20 °C or 25 °C. Water-temperable measuring tubes from all manufacturers can be temperature-controlled with our circulation thermostats and are connected in no time at all using the quick couplings for hoses integrated in our polarimeters.

P8000-T *with circulation thermostat* **PT31**

ORDER NUMBER	ITEM
PT80	PT80 circulation thermostat incl. mains adapter and silicone tube
PT80 MAINS ADAPTER	Replacement mains adapter for PT80 circulation thermostat with EU connector
PT80 PC CABLE	Connection cable (for control via polarimeter or PC) with interface documentation
PT31	PT31 circulation thermostat incl. mains adapter and silicone tube
PT31 COVER	Replacement cover for PT31 circulation thermostat
PT31 MAINS ADAPTER2	Replacement mains adapter for PT31 circulation thermostat with EU connector
PT35	Water bath purifier
P8001	Set for connecting PT31 or PT80 circulation thermostat to P8000-T/-TF polarimeter, consisting of: 2 silicone tubes (300 mm); 2 tube connectors, straight
STR80	Flow indicator

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A.KRÜSS OPTRONIC – CUTTING-EDGE TECHNOLOGY, MADE IN GERMANY

A.KRÜSS Optronic Headquarters in Hamburg

A.KRÜSS Optronic is a leading manufacturer of high-precision laboratory and analysis instruments. For more than 200 years we have been developing and manufacturing innovative product solutions for the quality control of raw materials, semi-finished products and end products in Germany.
As part of the quality assurance we are committed to, our measurement devices provide important key figures with which product quality and product safety can be monitored and ensured.
Refractometers, polarimeters, density meters, flame photometers, melting point meters, gas analysers or microscopes – our instruments meet the highest standards of accuracy, speed and reliability. We also have a wide range of measurement devices available for professional gemology.
Our demands on quality and precision are high and the requirements of our customers are always the top priority. Customers who decide to buy one of our devices do not only receive a quality measurement device, they also gain access to professional services and comprehensive support. Together with our certified service partners we offer customer service directly on site in over
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