

P8000-Series | Automatic High-Speed Polarimeters

The fastest polarimeters in the world!

The digital polarimeters of the P8000 series feature an innovative measuring principle to measure optically active liquids.

Our patented measuring technology works much faster than in conventional polarimeters, as it reduces measuring time to just one second, regardless of the rotation angle of the sample.

In addition, it permits continuous measurement, for example for kinetic investigations or in HPLC use. All adjustments on the device are made via an easy to use touchscreen. An easy to understand help display can be called up at any time.

With minimum effort, the user can carry out a simple menu-driven calibration using test quartz.

The T-models of the P8000 series are equipped with thermostat interfaces and the delivery includes an external PT31 thermostat.

The connection of a temperature-controlled gauge head permits extremely accurate measurement.

The devices are intended for use in FDA-regulated sectors due to their GLP compliance, integrated user management and full network support, for simple connection to the laboratory environment and an LIMS.

Range of applications

Pharmaceutical industry

- Monitoring chemical processes
- Purity control and determination of concentrations
- Characterisation of new synthetic substances
- The analysis of pharmaceuticals complies with Pharmacopoeia, DAB and other national and international standards.

Chemical industry

- Purity control and determination of concentrations
- Analysis of optically-active components (qualitative and quantitative)
- Determination of changes in the configuration
- Monitoring chemical processes

Sugar industry

- Quality control of original and end product
- Determination of fructose and glucose
- Sugar concentrations in refined beet and cane sugar, molasses and beet pulp

Food industry

- Determination of concentration
- Purity control
- Quality control

All internal data (measurement values, parameters and methods) are organised in an SQL database.

This can be accessed externally using SQL queries through a fixed interface (e.g. LIMS).

With KrüssLab software, the device can be controlled by PC remote mode, using the same intuitive layout as the touchscreen on the polarimeter.

The PC stores measurement results as a local copy in the database, so your data is retained after the polarimeter is switched off.

Various data filters allow you to send data in Excel or HTML to your printer or export it in PDF format.

Special features

- Extreme time savings – about 1 sec. measurement duration
- Bright touchscreen display with intuitive operation
- Extreme precision and resolution across the entire measurement range (regardless of rotation angle)
- High resolution LED with 100,000 hour service life
- Interval or continuous measurement possible
- 100 different methods and user tables (individual tables) can be set
- Calibratable temperature sensor
- High light intensity: Measurement and continuous sample readings possible to an optical density of 3.0
- Tough powder-coated metal housing
- Very quiet operation
- Data display of all important settings and measurements
- User management functionality (password-protected) can be activated
- Integral SQL database for data storage
- USB interface for data export and firmware updates and for connecting keyboard or barcode scanner
- RS-232 interface for serial printer
- Ethernet interface for direct connection to a PC (with possibility of remote maintenance via internet)
- PDF-export
- Direct printing possible on a PostScript-enabled network printer
- Full cGMP/GLP capability: password protection, data backup, automatic printout or data output in CSV-format
- Meets the relevant international standards such as Pharmacopoeia, OIML, ASTM
- NIST-compliant calibration certificate
- IQ/OQ/PQ-commissioning possible
- Extremely low maintenance and long life
- 3 year warranty with registration



Main measuring display

This is where the measurement is carried out and the results as well as the important parameters are displayed.

- Reading [$^{\circ}$, $^{\circ}$ Z, g/ml]: Optical rotation, international sugar scale, concentration
- Tube temperature
- Sample number
- Tube length
- Wavelength
- Thermostat temperature
- Status information

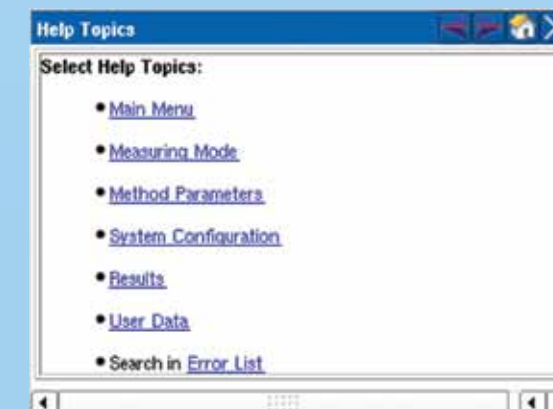
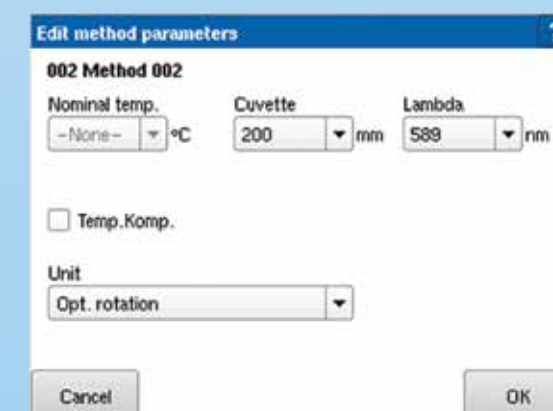
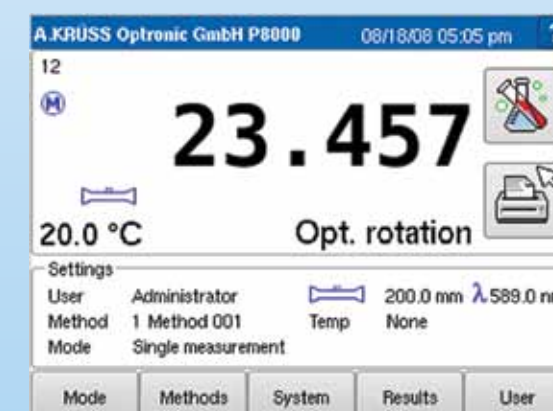
Parameter selection

This menu is used to adjust the measuring parameters.

- Sample designation
- Comment
- Tube length
- Wavelength
- Measuring unit [$^{\circ}$, $^{\circ}$ Z, g/ml]
- Specific rotation
- Temperature compensation

Individual user administration and help key

- Your settings are protected by an individual password.
- All screens have a help key which calls up explanations of the symbols shown on the screen.
- There is also extensive online help with every unit.



Specifications

	P8000	P8000-T	P8100	P8100-T
Measuring method	Optical rotation, int. sugar scale, concentration, spec. rotation, user-defined	Optical rotation, int. sugar scale, concentration, spec. rotation, user-defined	Optical rotation, int. sugar scale, concentration, spec. rotation, user-defined	Optical rotation, int. sugar scale, concentration, spec. rotation, user-defined
Measuring range	±90° ±259 °Z 0–99.9 g/ml	±90° ±259 °Z 0–99.9 g/ml	±90° ±259 °Z 0–99.9 g/ml	±90° ±259 °Z 0–99.9 g/ml
Measuring units	Angle [°, °Z] conc. [g/100 ml] user defined	Angle [°, °Z] conc. [g/100 ml] user defined	Angle [°, °Z] conc. [g/100 ml] user defined	Angle [°, °Z] conc. [g/100 ml] user defined
Resolution	0.001° 0.01 °Z 0.1 g/ml	0.001° 0.01 °Z 0.1 g/ml	0.001° 0.01 °Z 0.1 g/ml	0.001° 0.01 °Z 0.1 g/ml
Accuracy	±0.003° ±0.01 °Z ±0.5 g/100 ml	±0.003° ±0.01 °Z ±0.5 g/100 ml	±0.002° ±0.01 °Z ±0.5 g/100 ml	±0.002° ±0.01 °Z ±0.5 g/100 ml
Reproducibility	0.002°	0.002°	0.002°	0.002°
Measuring time ±90°	1 s	1 s	1 s	1 s
Light source	1 LED with filter	1 LED with filter	1 LED with filter	1 LED with filter
Wavelength	589 nm others optional	589 nm others optional	589 nm others optional	589 nm others optional
Wavelength selection	One fixed wavelength	One fixed wavelength	One fixed wavelength	One fixed wavelength
Connection for temperature sensor	Special tube with PT100 temperature sensor required	Special tube with PT100 temperature sensor required	Special tube with PT100 temperature sensor required	Special tube with PT100 temperature sensor required
Temperature measurement	0–99.9 °C	0–99.9 °C	0–99.9 °C	0–99.9 °C
Temperature resolution	0.1 °C	0.1 °C	0.1 °C	0.1 °C
Temperature accuracy	±0.2 °C	±0.2 °C	±0.2 °C	±0.2 °C
Temperature reading point	Tube	Tube	Tube	Tube
Temperature control	–	PT31 Peltier thermostat (water) with fast closure system	–	PT31 Peltier thermostat (water) with fast closure system
Range of temperature control	–	15–40.0 °C	–	15–40.0 °C
Accuracy of temperature control	–	±0.2 °C	–	±0.2 °C
Max. length of tube	220 mm	220 mm	220 mm	220 mm
Sensitivity	min 0.1 % (OD3)	min 0.1 % (OD3)	min 0.1 % (OD3)	min 0.1 % (OD3)
Calibration	Automatic (menu-driven)	Automatic (menu-driven)	Automatic (menu-driven)	Automatic (menu-driven)
Display	LCD TFT 5.7 “ 640x480 pixel color display (VGA)	LCD TFT 5.7 “ 640x480 pixel color display (VGA)	LCD TFT 5.7 “ 640x480 pixel color display (VGA)	LCD TFT 5.7 “ 640x480 pixel color display (VGA)
Operation	Touchscreen	Touchscreen	Touchscreen	Touchscreen
Measured data storage	999 measurements	999 measurements	999 measurements	999 measurements
Interfaces	RS-232 (printer) USB (data export, firmware updates) Ethernet (LIMS, remote monitoring)	RS-232 (printer) USB (data export, firmware updates) Ethernet (LIMS, remote monitoring)	RS-232 (printer) USB (data export, firmware updates) Ethernet (LIMS, remote monitoring)	RS-232 (printer) USB (data export, firmware updates) Ethernet (LIMS, remote monitoring)
Operating voltage	90–250 V 50/60 Hz	90–250 V 50/60 Hz	90–250 V 50/60 Hz	90–250 V 50/60 Hz
Dimensions in cm	64.5 x 20.0 x 36.0	64.5 x 20.0 x 36.0	64.5 x 20.0 x 36.0	64.5 x 20.0 x 36.0
Weight	28 kg	28 kg	28 kg	28 kg

P8000-PT | Automatic polarimeters with Peltier temperature control

Direct temp. control of the sample tube

Based on the reliable P8000 series, A. KRÜSS Optronic has developed a polarimeter with electronic temperature control using a special tube. Peltier elements and a glass tube with unbreakable metal sleeve are just some of its special features. The good insulation and positioning of the Peltier elements gives verifiable homogeneous sample temperature, making it possible to omit the water bath thermostat otherwise required for precise measurements. The advantages are obvious: There is no thermostat to be readjusted and maintained. The set-point temperature is entered directly on the touch-screen of the polarimeter and the device can automatically detect whether the tube has been connected. Of course, it is possible to use standard tubes without temperature control if the accuracy of a temperature-controlled sample is not required. In case the sample has been warmed up before, the time to bring it up to the right temperature can be considerably reduced thus utilizing the short measuring time of the P8000-Series – approx. one second . The P8000 series is the fastest polarimeter in the world!



Special features

As for the P8000, plus temperature-controlled Peltier sample tube.

Applications

As for the P8000

Specifications

	P8000-PT	P8100-PT	Display	LCD TFT 5.7 “ 640x480 pixel color display (VGA)	LCD TFT 5.7 “ 640x480 pixel color display (VGA)
Measuring method	Optical rotation, int. sugar scale, concentration, spec. rotation, user-defined	Optical rotation, int. sugar scale, concentration, spec. rotation, user-defined	Operation	Touchscreen	Touchscreen
Measuring range	±90° ±259 °Z 0–99.9 g/ml	±90° ±259 °Z 0–99.9 g/ml	Measured data storage	999 measurements	999 measurements
Measuring units	Angle [°, °Z], conc. [g/100 ml], user defined	Angle [°, °Z], conc. [g/100 ml], user defined	Interfaces	RS-232 (printer) USB (data export, firmware updates) Ethernet (LIMS, remote monitoring)	RS-232 (printer) USB (data export, firmware updates) Ethernet (LIMS, remote monitoring)
Resolution	0.001° 0.01 °Z 0.1 g/ml	0.001° 0.01 °Z 0.1 g/ml	Operating voltage	90–250 V 50/60 Hz	90–250 V 50/60 Hz
Accuracy	±0.003° ±0.01 °Z ±0.5 g/100 ml	±0.002° ±0.01 °Z ±0.5 g/100 ml	Dimensions in cm	64.5 x 20.0 x 36.0	64.5 x 20.0 x 36.0
Reproducibility	0.002°	0.002°	Weight	28 kg	28 kg
Measuring time ±90°	1 s	1 s	Peltier temperature control	Special tube PRG-100-EPT required	Special tube PRG-100-EPT required
Light source	1 LED with filter	1 LED with filter	Temperature measurement	0–99.9 °C	0–99.9 °C
Wavelength	589 nm, others optional	589 nm, others optional	Temperature resolution	0.1 °C	0.1 °C
Wavelength selection	One fixed wavelength	One fixed wavelength	Temperature accuracy	±0.2 °C	±0.2 °C
Max. length of tube	220 mm	220 mm	Temperature reading point	Tube	Tube
Sensitivity	min 0.1 % (OD3)	min 0.1 % (OD3)	Range of temperature control	15–40.0 °C	15–40.0 °C
Calibration	Automatic (menu-driven)	Automatic (menu-driven)	Accuracy of temperature control	±0.2 °C	±0.2 °C

P8000-DT Series | Autom. Polarimeters with Rinsing and Drying Module



Applications

As for the P8000-T

Main application areas: Flavourings industry and ingredient analysis of high-value substances.

Specifications

	P8000-DT	P8100-DT
Measuring method	Optical rotation, int. sugar scale, concentration, spec. rotation, user-defined	Optical rotation, int. sugar scale, concentration, spec. rotation, user-defined
Measuring range	±90° ±259 °Z 0–99.9 g/ml	±90° ±259 °Z 0–99.9 g/ml
Measuring units	Angle [°, °Z] conc. [g/100 ml] user defined	Angle [°, °Z] conc. [g/100 ml] user defined
Resolution	0.001° 0.01 °Z 0.1 g/ml	0.001° 0.01 °Z 0.1 g/ml
Accuracy	±0.003° ±0.01 °Z ±0.5 g/100 ml	±0.002° ±0.01 °Z ±0.5 g/100 ml
Reproducibility	0.002°	0.002°
Measuring time ±90°	1 s	1 s
Light source	1 LED with filter	1 LED with filter
Wavelength	589 nm others optional	589 nm others optional
Wavelength selection	1 fixed wavelength	1 fixed wavelength
Connection for temperature sensor	Special tube with PT100 temperature sensor required	Special tube with PT100 temperature sensor required
Temperature measurement	0–99.9 °C	0–99.9 °C
Temperature resolution	0.1 °C	0.1 °C
Temperature accuracy	±0.2 °C	±0.2 °C

Semiautomatic sampling

The P8000-DT features a temperature-controlled micro-cuvette that can be used in flow-through operation. This is particularly useful for aggressive or expensive samples and substances, as are often used in the pharmaceutical and flavouring industries.

The built-in rinsing and drying unit permits semi-automatic sampling, and subsequent cleaning using a hose pump and the integrated drying unit.

This eliminates the need to remove the sample tube and clean it outside the polarimeter, for major savings of valuable sample substances as well as time.

Cleaning is also possible through displacement by the new sample.

Special features

As for the P8000-T, plus

- Rinsing and drying module for aggressive substances and small sample volumes
- Parts that come into contact with samples are chemical-resistant (PTFE, PFA, viton, glass)
- Adjustable measurement and cleaning parameters
- Also available with autosampler

	P8000-DT	P8100-DT
Temperature reading point	Tube	Tube
Temperature control	PT31 Peltier thermostat (water) with fast closure system	PT31 Peltier thermostat (water) with fast closure system
Range of temp. control	15–40.0 °C	15–40.0 °C
Accuracy of temperature control	±0.2 °C	±0.2 °C
Max. length of tube	220 mm	220 mm
Sensitivity	min 0.1 % (OD3)	min 0.1 % (OD3)
Calibration	Automatic (menu-driven)	Automatic (menu-driven)
Display	LCD TFT 5.7 " 640x480 pixel color display (VGA)	LCD TFT 5.7 " 640x480 pixel color display (VGA)
Operation	Touchscreen	Touchscreen
Measured data storage	999 Measurements	999 Measurements
Interfaces	RS-232 (printer) USB (data export, firmware updates) Ethernet (LIMS, remote monitoring)	RS-232 (printer) USB (data export, firmware updates) Ethernet (LIMS, remote monitoring)
Operating voltage	90–250 V 50/60 Hz	90–250 V 50/60 Hz
Sample-feeding	Hose pump	Hose pump
Cleansing	Rinsing and drying module	Rinsing and drying module
Dimensions in cm	64.5 x 20.0 x 36.0	64.5 x 20.0 x 36.0
Weight	28 kg	28 kg