

# *P-2000 Digital Polarimeter*

*Ultimate flexibility for a wide range of applications*

*A new generation of polarimeters  
offering simplicity, reliability and  
complete validation protocols*



**Jasco**

# P-2000 Digital Polarimeter

Ultimate flexibility for a wide range of applications ranging from quality control to research and technology



Foods



Pharmaceuticals



Sugars and Sweeteners



Essential oils, Flavors and Fragrances

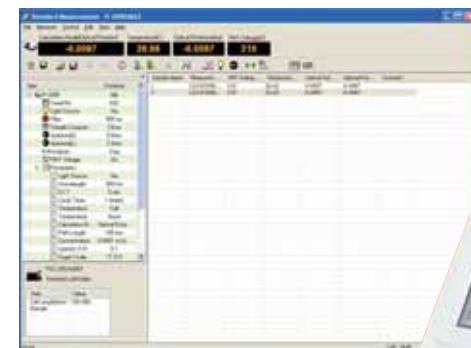


Chemicals

JASCO, a leading manufacturer of polarimeters since 1967, is proud to introduce the new P-2000 multi-option polarimeter. The P-2000 is designed as a customizable polarimeter with various options for a range of applications and budgetary requirements. The instrument system can also be field upgraded as the application requirements change.

## Advanced instrument control

Two graphical user interfaces are available including a newly redesigned intelligent remote module (iRM-800) with a color LCD touch screen and Spectra Manager™ II software, the latest version of JASCO's innovative cross-platform spectroscopy software. Both of these control and analysis interfaces allow full-system control and advanced data processing. 21 CFR part 11 compliant versions for both interfaces can be ordered as an option.



Spectra Manager™ II



iRM-800

The iRM conveniently guides the operator through routines from data acquisition to data processing. The obtained data can be automatically printed to USB printers, or saved to a compact flash memory card for further processing on a PC.

## Full line of accessories

In support of diverse applications, a full line of accessories including a variety of cylindrical cells: a demountable stainless steel cell, Peltier thermostatted cell holder, and monochromator options, all offered for functional expansions of the P-2000. A newly developed Peltier cell holder offers accurate temperature control with  $\pm 0.1^\circ$  accuracy.

## Interference filter



A wide range of interference filters from UV-Vis to NIR

8-position automatic filter changer is optionally available.

## Automatic light source switching mirror option

## Light source

Up to two light sources can be installed. Available light sources are;

- WI (Tungsten-Halogen lamp)
- Na (Sodium lamp)
- Hg (Mercury lamp)

## High speed, precision and accuracy

The P-2000 offers a response speed as fast as six degrees per second to provide reproducible data for each measurement with a resolution of 0.0001°. A wide dynamic range of up to  $\pm 90^\circ$  enables the system to measure chiral compounds over a broad range of concentrations. The sample chamber is equipped with two integrated temperature probes for cell holder and sample.

## Reliability and instrument verification

An automated validation program is available for GLP/cGMP laboratories or those regulated by the FDA. The program can be used for periodic validation of light source energy, zero repeatability, and rotational accuracy/repeatability. Inspected filters, sample cells with certified optical path length, and NIST-traceable rotation plates are also available.

## Cell holder

### RSC-200 V-shape cell holder

Temperature control by an optional thermostatted water circulation bath and a water-jacketed cylindrical cell



### PTC-203 Peltier thermostatted cell holder

Temperature control by Peltier effect with a SUS demountable cell or a cylindrical cell



### SHP-201P Peltier sipper SHP-201 Sipper

For quick measurements of multiple samples



## Ultimate flexibility

With its single optical platform, the P-2000 can be customized to provide the optimum performance for every application. By selecting the most suitable combination of optical elements, the instrument can be used in the ultra-violet, visible and/or NIR regions.

### Examples of versatile system configurations

#### A single wavelength system

546 nm with Hg or WI lamp

589 nm with Na or WI lamp

#### A dual wavelength system

589/546 nm with Na/Hg or WI lamp

#### 5 wavelength system

589/578/546/436/365 nm with Na/Hg lamps

#### 6 wavelength system

633/589/546/436/405/365 nm with WI lamp

#### 7 wavelength system

633/589/578/546/436/405/365 nm with WI lamp

#### System expansion to UV range

334/313/302/296/280/254 nm with Hg lamp with the optional UV/NIR region wavelength extension unit

334/325 nm with WI lamp with the optional UV/NIR region wavelength extension unit

#### Multiple wavelength system for UV/Vis range

633/589/578/546/436/405/365/334/325 nm with WI lamp with the optional UV/NIR region wavelength extension unit

#### System expansion to NIR range

880 nm with WI lamp with the optional UV/NIR region wavelength extension unit

#### Multiple wavelength system for NIR and Visible range

880/589 nm with WI lamp with the optional UV/NIR region wavelength extension unit

880/589/546 nm with WI lamp with the optional UV/NIR region wavelength extension unit

## Hardware Specifications

|                               |   |
|-------------------------------|---|
| Principle                     | Automatic digital polarimeter with symmetric angular oscillation using the optical-null balance method      |
| Light source                  | Tungsten-Halogen lamp (WI), Sodium lamp (Na), Mercury lamp (Hg) (Up to two light sources can be installed.) |
| Wavelength                    | 880, 633, 589, 578, 546, 436, 405, 365, 334, 325, 313, 302, 296, 280, 254 nm                                |
| Aperture                      | 1.8, 3 and 8 mm diameters   |
| Angular range                 | ±90°  |
| Response speed                | 6°/sec  |
| Measurement accuracy          | ±0.002° (up to 1°), ±0.2% (larger than 1°)  |
| Repeatability                 | 0.002°  |
| Resolution                    | 0.0001°   |
| Integration time              | 1 - 100 sec   |
| Detector                      | Photomultiplier tube  |
| Automatic recognition         | Light source, filter, cell holder   |
| Temperature measurement       | Cell holder, cell (sample)  |
| Temperature measurement range | 0~40°C (Temperature accuracy: ±0.1°C)   |
| External output               | Analog output   |
| Dimensions                    | 653 (W) x 249 (D) x 364 (H) mm  |
| Weight                        | Approx. 30 kg   |
| Power requirement             | AC100~240V ±10%, 50 or 60 Hz, 80 - 300 W  |

## iRM-800 Intelligent Remote Module

|                         |   |
|-------------------------|---|
| Display                 | 320 x 240 pixel color LCD<br>Touch sensitive screen   |
| Measurement modes       | Polarimeter measurement<br>Readout modes: Optical rotation, optical specific rotation, concentration, sugar scale Z, Brix purity, optical purity<br>Statistical calculation: Average value, standard deviation, coefficient of variation<br>Time course measurement<br>Readout modes: Optical rotation, optical specific rotation<br>Data processing: Reaction rate calculation |
| Other standard function | Instrument validation   |
| Data handling           | Data format: JASCO format, text format  |
| Data save               | Compact flash memory card   |
| Optional                | CFR version<br>Printer: USB compatible printer  |

## Spectra Manager II

|                         |   |
|-------------------------|---|
| Measurement modes       | Polarimeter measurement<br>Readout modes: Optical rotation, optical specific rotation, concentration, sugar scale Z, Brix purity, optical purity<br>Statistical calculation: Average value, standard deviation, coefficient of variation<br>Time course measurement<br>Readout modes: Optical rotation, optical specific rotation<br>Data processing: Reaction rate calculation |
| Other standard function | Instrument validation   |
| Optional                | CFR version   |

## Lamps and filters

| Filter | Light Source                            |                  |   |
|--------|---|------------------|---|
|        | WI (Tungsten-Halogen lamp)              | Na (Sodium lamp) | Hg (Mercury lamp)                       |
| 880 mm | UV/NIR region wavelength extension unit |                  |   |
| 633 mm |   |                  |   |
| 589 mm |   |                  |   |
| 578 mm |   |                  |   |
| 546 mm |   |                  |   |
| 436 mm |   |                  |   |
| 405 mm |   |                  |   |
| 365 mm |   |                  |   |
| 334 mm | UV/NIR region wavelength extension unit |                  | UV/NIR region wavelength extension unit |
| 325 mm | UV/NIR region wavelength extension unit |                  |   |
| 313 mm |   |                  | UV/NIR region wavelength extension unit |
| 302 mm |   |                  | UV/NIR region wavelength extension unit |
| 296 mm |   |                  | UV/NIR region wavelength extension unit |
| 280 mm |   |                  | UV/NIR region wavelength extension unit |
| 254 mm |   |                  | UV/NIR region wavelength extension unit |



● Specifications are subject to change without notice.

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