

For General Purpose Applications

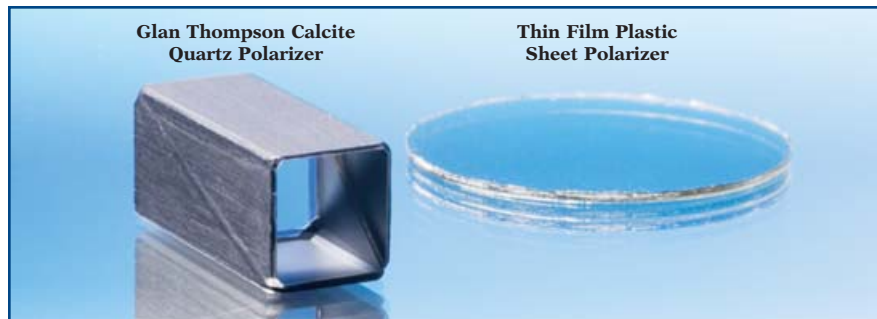
The Autopol® II Automatic Polarimeter



**RUDOLPH
RESEARCH
ANALYTICAL**

TECHNICAL BULLETIN 918

The Autopol II is designed as a general purpose automatic polarimeter for budget focused Contract Laboratories, Food Labs and College Chemistry Laboratories.



(Figure A)

QUALITY

Rudolph manufactures its entry-level polarimeter with the same high quality optics as its more expensive instruments. While other manufacturers in this price range use Polaroid Plastic Dichroic Sheet Polarizers, Rudolph does not. Instead, Rudolph uses the same high quality Glan Thompson Calcite Quartz Polarizers used in its high accuracy models. (Figure A)

Why are high quality polarizing prisms important? Because prisms are two of the most critical optical components in the polarimeter. Polaroid prisms are made of a polymeric plastic where the molecules are stretched and oriented in a specific direction so as to linearly polarize light. These types of plastic sheet polarizers are very inexpensive (\$50.00 USD) and are vulnerable to heat, warp over time, deteriorate from moisture, and also have greater light absorption than Calcite Polarizers. In many cases, the plastic polarizers must be replaced in 3 – 5 years. Glan Thompson Calcite Quartz Polarizers are comprised of a carbon crystalline structure similar to diamond and have excellent light transmission characteristics. The quality of these prisms is so good, Rudolph guarantees its prisms over the life of the polarimeter.



(Figure B)

TEMPERATURE

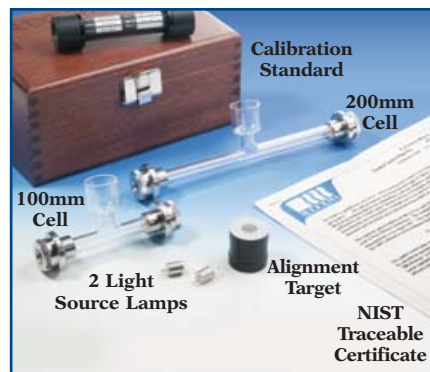
As shown in Figure B, the Autopol II comes with a Temperature Probe so that sample temperature can be displayed and printed. However, if your product requires Temperature Control, then the Autopol II will most likely not be accurate enough for this type of sample, as is the case for 98% of pharmaceutical applications where a Certificate of Analysis must be issued.

WAVELENGTHS AND ACCESSORIES

The Autopol II comes with two built-in wavelengths that are selectable via the touch screen: 589nm (often referred to as the Sodium D-Line) and 546nm. The Autopol II also includes the Standard Accessories Package shown in Figure C or you can upgrade to the Calibration Package shown in Figure D.



(Figure C)



(Figure D)

SPECIFICATIONS:

Measuring Mode:	Optical Rotation, Specific Rotation, Concentration, °Z (ISS) Sugar Degrees
Measuring Scale:	Degrees Arc Optical Rotation
Measuring Range:	±89° Arc Optical Rotation
Resolution:	0.01° Arc Optical Rotation
Reproducibility:	0.01° Arc Optical Rotation
Accuracy:	0.01° Arc Optical Rotation 0.03°Z (ISS) Sugar Degrees
Prism:	Glan Thompson Calcite Quartz
Optical Wavelengths:	589nm, 546nm
Temp. Control Range:	Available on Autopol V only. A 0.01 resolution polarimeter cannot detect the effect of temperature changes between 20°C - 30°C for most substances
Temp. Control Accuracy:	Available on Autopol V only
Temp. Probe Measurement Range:	10° - 40°C
Temp. Probe Measurement Accuracy:	±0.1°C
Measurement Time:	5 measurements in less than 25 seconds (avg.)
Light Source:	Tungsten-halogen 6V, 20W, avg. 2,000 hour life
Sample Chamber:	Accepts sample tubes up to 200mm
Data Storage:	Available on Autopol V only
Communication Interface:	Two RS232 serial ports, one parallel printer port
Analog Output:	0.1% resolution 0-10 volt full range (optional)
Calibration:	Automatic calibration via touch screen
Display:	7.5cm x 10cm Graphics LCD, 320 x 240 dots cold fluorescent back lit
User Interface:	Touchscreen
Automatic Sensitivity Control:	Measures samples with transmittance as low as 0.01% (up to OD 0.04)
Input Power:	100 - 240V, 50/60 Hz
Operating Dimensions:	24.3"W x 12.7"H x 17.5"D 617mm W x 323mm H x 445mm D
Shipping Dimensions:	36"W x 19"H x 21"D 923mm W x 487mm H x 538 mm D
Operating Weight:	42 lbs. (19.05 kg)
Shipping Weight:	72 lbs. (32.6kg)
Calendar/Clock Functions:	Battery-backed clock; time and date sent to computer & printer