

# GPR 12-70E

# HIGH TEMPERATURE



## AUTOMATIC REFRACTOMETER

**ii** INDEX  
INSTRUMENTS

- **Electronic Heating & Cooling, 5°C below ambient to 100°C**
- **Refractive Index 1.33 to 1.70, Brix Range 0 to 100**
- **Conforms to ASTM D1218, D1747 and D5006**
- **Stores up to 100 test results**

Index Instruments have been making high quality, fully automatic refractometers since 1980 and brought out the first model with electronic temperature control in 1993. Building on that experience, our latest model, the GPR 12-70E is a general purpose model, specially designed to measure the refractive index (RI) or Brix of samples over a wide range of temperatures from about 20°C upwards and is especially suited to high temperature measurements up to 100°C.

Temperature control is by internal solid state Peltier cells and so there is no need for a separate thermocirculator. Even when the sample is at 100°C, the sample cover remains cool to the touch. Removing the need for a thermocirculator saves a significant amount of bench space, reduces maintenance problems, provides a safer system as there are no pipes carrying hot fluids and removes the uncertainty in temperature between the external device and the actual sample temperature.

The GPR 12-70E refractometer has Peltier cells located below the prism and also above the sample presser, ensuring all round temperature control. It is essential to control the sample cover as well as the prism to obtain accurate, uniform sample temperature in the widest range of ambient conditions.

#### APPLICATIONS

Designed to conform to the strictest requirements of today's modern analytical laboratory, the GPR 12-70E is ideal for any laboratory that has stringent analysis regulations in place, whether this is in the oil, pharmaceutical, plastics or food industries. The wide temperature range from about 20°C to 100°C and the wide RI range from 1.32 to 1.70, make the GPR 12-70E the best choice for the crude oil and petrochemical industry. It is also ideal for measuring samples such as polymers, jams and preserves, vegetable oils, confectionery boiling, glucose, speciality chemicals etc.

#### FEATURES

The GPR 12-70E is a versatile and robust instrument appropriate for either the laboratory or factory environment. A small sample volume, about 0.2 to 0.3 ml, is all that is required for accurate measurements. The user can select operating modes to suit either their research or their daily quality control analysis routines. The refractometer can be optimised for both clear and turbid samples such as emulsions. Set-up functions can be protected against unauthorised access or interference. Data can be output to a printer and a computer. As well as the reading, the time, date, temperature, instrument serial number and a sample number can all be recorded. Software (ask for 'Test Pilot') is available from Index Instruments to interface the output data with spreadsheets or text software on your computer to allow you to perform any required calculations and storage of data. The GPR 12-70E also stores up to 100 readings within the instrument, allowing you to scroll back to look at your previous readings, print any of the readings or download to a computer when convenient. A bar code reader is available as an optional accessory to add coded data to the GPR 12-70E output.



## GPR 12-70E

### TECHNICAL SPECIFICATION

<b>Scales:</b>	Refractive Index (RI), Brix, Temp. Corrected Brix, 10 user programmable scales and user programmable Temperature corrected RI scale
<b>Range:</b>	RI 1.32 to 1.70 Brix 0 to 100%
<b>Readability:</b>	User selectable RI 0.0001 or 0.00001 Brix 0.1 or 0.01%
<b>Accuracy:</b>	RI $\pm 0.0001$ Brix $\pm 0.1\%$
<b>Wavelength:</b>	589nm, precisely defined by narrow band optical interference filter
<b>Temp. Control:</b>	Internal Peltier cells to prism and presser
<b>Sample Temp. Range:</b>	5°C below ambient to 100°C
<b>Temp. Accuracy:</b>	Between $\pm 0.1^\circ\text{C}$ and $\pm 0.5^\circ\text{C}$
<b>Temp. Readout:</b>	Continuous display of both set temperature and actual sample temperature to 0.1°C
<b>Temp. Setting:</b>	Digital, via key pad
<b>Prism Material:</b>	Synthetic sapphire
<b>Sample Volume:</b>	Approximately 0.2 ml
<b>Readout Time:</b>	User selectable, continuous update approximately every second or average over several readings for improved stability; single scan with user programmable delay or automatic stability mode (reads only when stable)
<b>Special Feature:</b>	Touch button selection of normal or emulsion type sample
<b>Display:</b>	Back-lit graphic display LCD panel, main digits 8mm tall
<b>Memory Storage:</b>	Up to 100 readings (re-write >4,000,000 times)
<b>Data Outputs:</b>	Reading, scale, temperature, time, date instrument serial no., and/or sample number (user selectable), automatic timed print function
<b>Outputs/Inputs:</b>	2 x RS232 for printer or computer 1 x remote operate / bar code input
<b>Power Requirements:</b>	86-265V AC; 47-63Hz; <40 watts
<b>Dimensions / Weight:</b>	w 235 x d 260 x h 255 mm / Wt. 6.8kg Refractometer w 80 x d 175 x h 60 mm / Wt. 0.8kg Power supply
<b>Packed:</b>	500 x 400 x 350 mm / Wt. 10.5kg