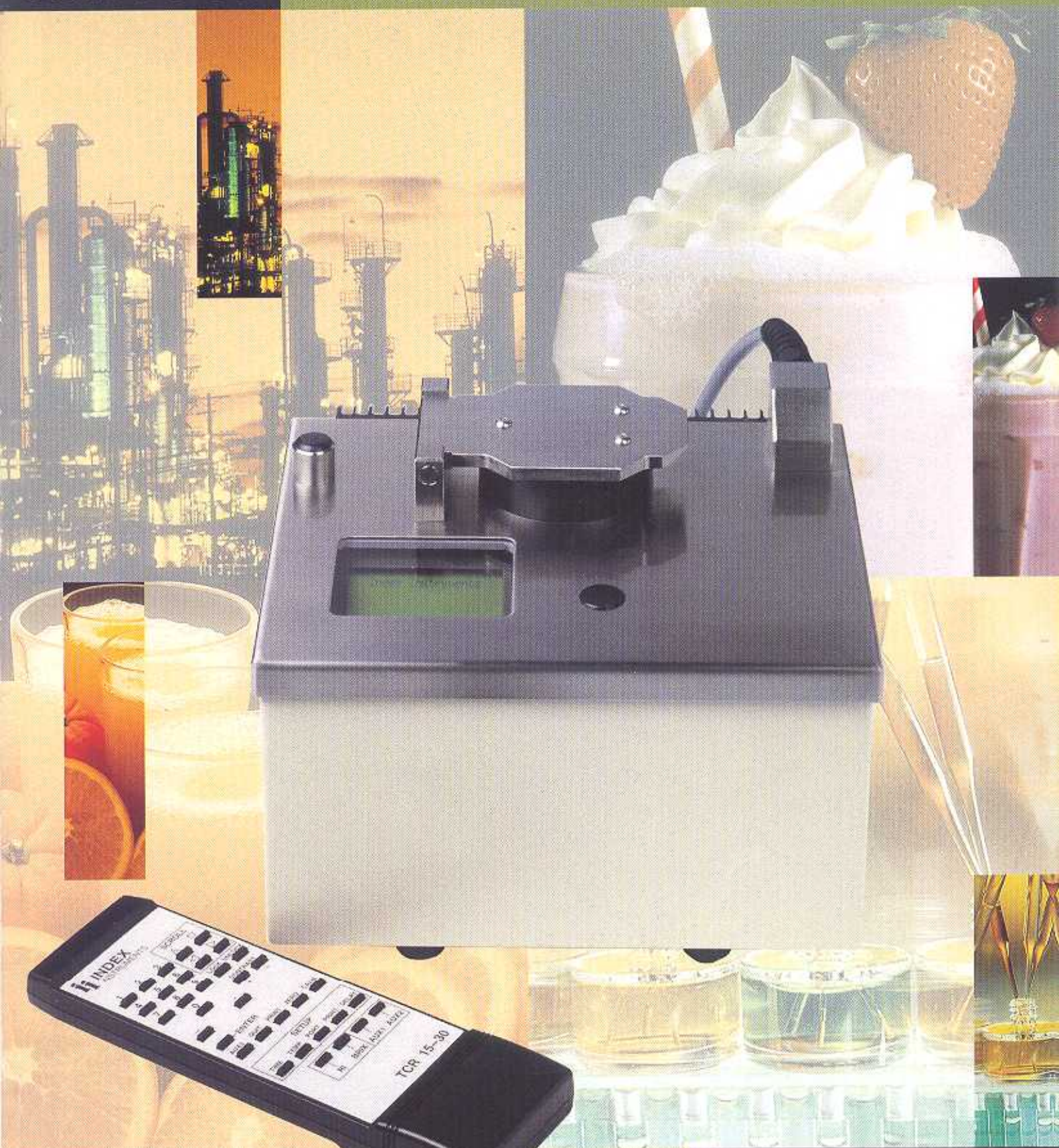


TCR 15-30

The world's most advanced refractometer



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The **Ultimate Refractometer** for the **Ultimate range of applications**

As a user of refractometers, you demand an instrument which offers ease of use, accuracy and reliability. The TCR 15-30 is all this, and so much more that it can truly be said to be the world's most advanced refractometer. The clean, functional and compact lines of the TCR 15-30, belie the advanced optical and engineering technology which make this such a ground breaking instrument. Read on to appreciate how its unique benefits will help you to run more efficient, cost effective, laboratory or quality control monitoring over a very wide range of products.

Remote control of analysis parameters

The familiar TV style Remote Control Unit provides convenient, yet very secure, access to setting of the analysis parameters. Once set, the conditions cannot be changed by inquisitive button pushers or 'meddlers'. Having set the instrument conditions, which you determine are right for any particular analysis, you can lock the Remote Control Unit away in a drawer or cabinet, secure in the knowledge that until you decide to change them, these conditions cannot be interfered with.

All of the instrument conditions and settings are arranged at the touch of a button and when they have been set, are confirmed by an audible signal. Settings of the analysis conditions - Scale, Temperature, Sample Stabilisation Time, Time and Date, printing of results, or downloading to a PC, is achieved in just a few seconds. The operator then has only to apply the sample to get an instantaneous result or press a single button if standard stabilisation and reading conditions are required.

Even if the operator has never used a refractometer before or has experience of only the most basic types, using the TCR 15-30, they can obtain highly accurate and reproducible results in the time it takes to apply the sample, close the cover and press a single button - not more than 10 seconds!

Superb temperature control - without a water bath

The TCR 15-30 provides electronic sample heating and cooling to extreme levels of stability and results are obtained at any temperature from 15°C to 40°C. The sample temperature is shown continuously on the illuminated display to 0.01°C.

With the TCR 15-30, instrument set up costs are lower because you do not need a waterbath. The sample is rapidly brought to a stable temperature (0.03°C) by internal temperature control, giving the highest accuracy and reproducibility of

measurement. The TCR 15-30 has been engineered to operate in a wide range of ambient conditions (10°C to 35°C), and is supplied with a standard auxiliary heat sink to ensure that accuracy is not lost when 'cold' samples (around 20°C) are measured in the high ambient conditions found in many tropical climates.

Simple to use

Apart from the ON/OFF switch on the separate power supply unit, there is only one operating control on the TCR 15-30. This is the Read / Print button which is flush mounted to the instrument's top cover for easy cleaning.



In the continuous reading mode, the operator has only to apply the sample and close the hinged cover to obtain an instantaneous readout. If the supervisor has set the instrument conditions to allow for standard stabilisation time, then the operator just lightly touches the Read / Print button and the instrument counts down from the set delay time, measures the sample and holds the result until the cycle is repeated. If the sample needs a long stabilisation time, then the operator can continue working away from the instrument safe in the knowledge that the result will not be lost or missed while they are otherwise occupied.

For you, the Laboratory or Production Manager, you can always be assured that while access to the Remote Control Unit is restricted, the all-important instrument settings cannot be changed. In production processes that are working within tight quality control or economic limits, this benefit has far-reaching significance.

Range, accuracy and a choice of measuring scales to suit your needs

Versatility is a major strong point of the TCR 15-30. Four measuring scales - Refractive Index (RI), percent Dissolved Sucrose (% Brix), Temperature Corrected Brix and a User Programmable scale satisfy virtually all measurement requirements. With the TCR 15-30, you get a rapid result at any sample temperature, improving quality control and reducing response time to possible 'out of limits' production problems.

High resolution (to 0.00001RI) is provided throughout the TCR's operating range of 1.33 to 1.53 RI (0 to 95% Brix) and this is complemented by Brix and Temperature resolved to 0.01% and 0.01° respectively. The display also includes a real time clock.

An intelligent measuring system within the instrument helps it to automatically decide when the sample has come to a stable reading and, only then, to output the result. This has a dual benefit - for a sample which has not reached stability (eg. is at a widely differing temperature to the instrument), it improves the accuracy of measurement. For a sample which comes quickly to stability, it can speed up the measurement. The user specified stability 'window' is accessed and set using the remote control unit and like other critical settings cannot be interfered with by the operator.

Full analysis data at your fingertips

An important feature of the TCR 15-30 is the 'easy view' illuminated display panel which provides a large, bright LCD (Liquid Crystal Display) of the set-up parameters or results. The back lit display is easy to read in low light conditions and with a three second read time, it is always up-to-date.

In the continuous mode, the result is displayed instantaneously on closure of the hinged cover. For samples which need time to reach a stable temperature, you can set a delay time from three to 999 seconds. This makes the TCR 15-30 the ideal choice for production area work where it guarantees reproducible measuring conditions and improves quality control confidence. As each



measurement is made, the result, (with scale and Date & Time) is automatically output to a printer or PC.

Reliability you can depend upon

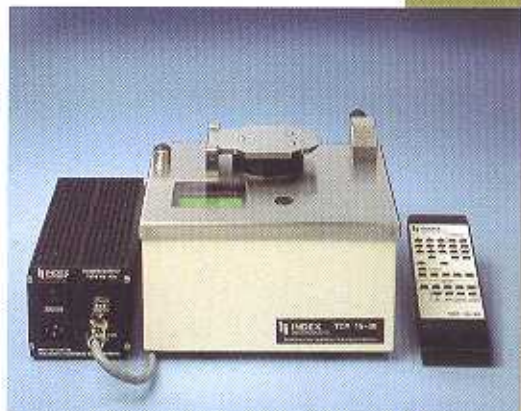
With nearly 20 years of scientific instrument manufacturing experience behind us, Index Instruments have built up an unparalleled reputation for reliability and quality. The TCR 15-30 further extends the philosophy of technical innovation based on the foundation of excellence that is our benchmark.

The TCR 15-30 has no moving parts and the instrument's LED light source gives a virtually indefinite lifetime, so that routine maintenance is now a thing of the past.

Even the most difficult samples such as Honey, Chocolate Sauce and Dairy products can be measured with the same ease and accuracy as clear samples.

Tailored to the tightest corner

Today, bench space in laboratories and production areas is at such a premium that the demand for compact instrument design has never been greater. Innovations in electronic and optical layout incorporated in the TCR 15-30 mean that it occupies a 'footprint' of just 437 cm², that's only two thirds the space of an A4 writing pad! Being so economic in space demand, the TCR 15-30 is the one refractometer which no lab or production area can afford to be without. And with this instrument you can forget worries about making room for a water bath too. The space savings made by the TCR 15-30 have not been achieved at the expense of robustness or durability. Indeed, the instrument has an internationally recognised IP67 rating for physical impact protection and water resistance.



Tested and approved for any electrical supply

Every TCR is manufactured to comply with the European Directives on Electro-Magnetic Compatibility and carries the internationally recognised CE mark. The universal power supply unit can be used with any electrical supply throughout the world and instantly adjusts to suit the available supply or fluctuations in the supply, within the range 83 - 265 V AC, 47 - 63 Hz. All the user needs to do is to plug-in to connect themselves with a future of fast, accurate product analysis, free from the worry of outside or unauthorised interference with the measuring conditions.

SCALES:	Refractive Index (RI) Brix (% sucrose) Temperature Corrected Brix (% sucrose, corrected to 20°) User Programmable Scale
DISPLAY:	Back-lit liquid crystal display panel giving -name of selected scale, reading, sample temperature and real time clock
DISPLAY RESOLUTION:	RI 0.00001 Brix (and temperature corrected Brix) 0.01% Temperature 0.01°C Real time clock to 1 minute
ACCURACY AT 20°C:	From 0.02 Brix at 0 Brix to 0.04 Brix at 95 Brix or equivalent in other scales
OUTPUT:	Standard RS232
DATA OUTPUT TO PRINTER/PC (or other data collection device):	Time, Date, Name of selected scale (e.g. RI or Brix), reading and temperature
RI RANGE:	1.33 to 1.53 (equivalent to 0 to 95 Brix)
TEMPERATURE CONTROL:	Internal electronic control of prism and sample cup
SAMPLE TEMPERATURE CONTROL RANGE:	15°C to 40°C
WORKING AMBIENT TEMPERATURE RANGE:	10°C to 35°C
SAMPLE TEMPERATURE:	Internal control range without cooling assistance: approximately +20°C to -10°C from ambient temperature
COOLING ASSISTANCE:	All instruments have facility for cooling assistance with flowing water (need not be temperature controlled)
TEMPERATURE STABILITY:	0.03°C
TEMPERATURE ACCURACY:	±0.1°C at 20°C
REPRODUCIBILITY:	For a stable sample, better than 0.00003 RI or equivalent in other scales
READOUT TIME:	Continuous reading every 3 seconds, OR user presettable from 3 to 999 seconds, time to temperature stability dependent on temperature differentials
USER DEFINED STABILITY:	User can choose to display result only after reading has stabilised
WAVELENGTH:	589nm
LIGHT SOURCE:	LED
PRISM MATERIAL:	Synthetic Sapphire
WATERPROOF:	Instrument totally waterproof to IP67 standard
CONTROLS:	On instrument, PRINT/READ button only On power supply, mains ON/OFF switch All other controls for changing scales, selecting mode, programming, etc. on hand-held remote control unit
DIMENSIONS:	Instrument: W 237 x D 235 x H 170 mm Power supply: W 93 x D 213 x H 89 mm
WEIGHT:	Instrument 5 kg Power supply 1.75 kg
POWER REQUIREMENTS:	86 to 265 v ac, 47 to 63 Hz nominal, less than 40 w

Specifications subject to improvement without notice.

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A new angle on refractometry