



AccuScreen™ Systems

NIR Instrumentation for Powder and Granulation Analysis

AccuScreen Improves Laboratory Efficiency

Your laboratory operations generally involve samples that reside in standard containers – vials, cups or Petri dishes. AccuScreen is the first NIR spectrometer system that conforms to your operating cycle. Simply place a sample container on the loading chute, and the system takes over. The sample loads, and analysis commences. Results appear on-screen in seconds and are logged in the software audit trail function.



The AccuScreen system with a fiber optic bundle and a special solid sample compartment.

Better Data

NIR is a very powerful technique. It requires development of a chemometric calibration over time and then compares each new test sample with a statistical model that encompasses both physical and chemical changes. Using the AccuScreen system, samples are not touched by any sampling device. Light beams do all the work, so there is no sample compaction or distortion. Fewer physical changes mean that chemometric calibrations are more robust. Data variance is reduced, therefore, analytical results are more robust.

Cost Effective

Acquisition cost of the AccuScreen system is low. Compare price and performance with other productive laboratory instruments on any basis – price, per-sample cost, reagent cost, disposables cost, analytical time, maintenance cost – and you will be favorably impressed. It's all because of LT Industries' NIR Spectral Engine technology. It's better.

The basic system

AccuScreen includes a smart, surface-positioning sensing sample chamber, reproducible loading chute and LT Industries' proven one-thousand-wavelength

LT Industries Inc.

811 Russell Avenue, Gaithersburg, M.D. 20879
Phone: (301) 990-4050 Fax: (301) 990-7525

Near Infrared Technology at Work



Product Information

NIR spectrometer – all supported by an excellent software package

AccuScreen/SPX™

LT Industries' SPX technology adds parallel data processing to the AccuScreen system. This sophisticated electronic package allows system expansion over long distances and expands system capability for use with VISTA Software for NIR Analysis™ -- a Microsoft Windows®-based program.

Utility Options

- **Freedom Probe™**

Despite the speed and passive interaction of NIR, testing probes must be cleaned between tests. Freedom Probe allows surface observation of all powdery materials and many solids without physical contact. The result? No intersample cleaning and no cleaning validation protocol.

- **TransKit™**

When Iso-Pharm systems are needed in the raw material warehouse, wheels are a big help. TransKit is an application support cart to make mobile operations easy. From its industrial pneumatic wheels with full brake locks to secure housing for the spectrometer and computer, TransKit accommodates testing from shelves to pallets. The TransKit includes its own wiring harness, secure frame for the testing probe and a utility space.

- **Software**

VISTA Software for NIR Analysis includes an excellent GMP package for instrument test and calibration with both archiving and print report functions. The program interacts with both Windows 95 and Windows NT platforms. The package, which also contains GRAMS/32 AI, PLSPPlus IQ, and LTSlave modbus interface, includes extensive model development routines and provides elegant pictorial views of the statistical data set.

TRANS Software is LT Industries' highly-regarded calibration transfer program. These days, eighty percent of all pharmaceutical NIR analyzers are multiples:

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Similar instruments in use at more than one plant. With TRANS Software, a chemometric model may be developed once and transferred easily from plant to plant.

Why NIR?

The development of the analytical technique called Near-Infrared (NIR) spectrophotometry is generally credited to Karl H. Norris and William Hruska, scientists at the US Department of Agriculture. The developers applied both NIR vibrational absorptions and heterogeneous sample observation to agricultural materials during the 1970's. The applications of the resulting combined technique were both highly successful and wide-ranging. Virtually every grain elevator in Canada, for instance, uses a NIR spectrometer to blend differing wheat grades for revenue purposes. Crop harvests the world over are dependent on NIR values for payment to the farmer. Milk, sugar, seeds and textile crops such as cotton are all screened by NIR. There are many thousands of NIR instruments in agriculture: they have become a mainstay in harvest assessment and control.

The reasons that NIR is so widely used are its speed and its elimination of the need for sample preparation. In analytical chemistry terms, agricultural products are difficult: sample sizes, average weights and matrix compositions differ markedly, and analytes are often masked by proteins, moisture and long-chain hydrocarbons. When a harvest is underway, the chemist faced with an avalanche of quality-control samples would never be able to provide timely Kjeldahl nitrogen values for example. Rapid, passive NIR can do so, however, and so has become a virtual necessity.

The pharmaceutical industry uses thousands of NIR analyzers for the very same reasons: speed of measurement, freedom from sampling restraints and reagents, affinity for point-of-use testing. Ph. Eur. contains a generic NIR method. USP is in dialogue with the USFDA to incorporate a similar method in the next issue. The USFDA approved NIR as a bulk pharmaceutical release method -- replacing three compendial methods -- as long ago as 1992.

Want more information?

LT Industries publishes The NIR Desk Reference, a handbook to aid in understanding the principles and applications of NIR. Write for a copy.

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Product Information

Spectrometer Specifications (Basic Unit)

Reliability:	Designed for twenty-four hour operations without shut-down.
Spectral range:	1200 - 2400 nm
Spectral Expansion:	400 – 2400 nm
Scanning speed:	5 scans per second
Spectral addition:	Scans may be added under computer control
Measurement modes:	Reflectance, Transmittance, Transflectance
Data interval:	1 nm (1200 points over the spectral range)
Bandwidth:	10 nm
Photometric range:	5 Absorbance Units
Photometric noise:	< 40 μ AU, 15 μ AU typical (0 AU absorber, 50 scans averaged)
Wavelength accuracy:	<0.015 nm
Wavelength repeatability:	0.01 nm
Stray light:	0.1% or better
Light geometry:	Optimized for minimum specular reflectance and maximal S/N
Auxiliary port:	Computer controlled for alternative sampling
Possible signal output:	Multiple 4-20 mA, multiple voltages
Power:	120V, 3.5 Amp, 60Hz or 220V, 1.8 Amp, 50 Hz
Power transients:	Filtered
Dimensions:	12" x 15" x 13" (HWD) 30.5 cm x 39.7 cm x 34.9 cm (HWD)

Specifications subject to change without prior notification

LT Industries
811 Russell Ave.,
Gaithersburg, MD 20879

Tel: 301 990 4050
Fax: 301 990 7525
e-mail: Info@LTindustries.com

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