The XDS Near-Infrared Product Line from FOSS – Cost-Effective, Efficient and Reliable
FOSS is the world leading supplier of near-infrared (NIR) products and services. FOSS NIRSystems, Inc. has more than 40 years of industry experience and over 15,000 successful installations worldwide.

FOSS sets the standard for precise, reliable and versatile NIR solutions. Our experience and dedicated solution approach to NIR technology and its implementation are unmatched in the industry. FOSS’ application knowledge, global distribution and support network ensures cost-effective and efficient method development and routine implementation.

**Cost-Effective**

Near-infrared testing is completely non-destructive and requires no sample preparation. Samples are often measured directly through glass vials, containers or plastic bags. No hazardous waste is created since NIR analysis requires no solvents or reagents. NIR analysis can reduce the cost of routine testing by 50% to 95% depending on the application. The analytical benefits of routine NIR testing include 100% material inspection, improvements in product quality and consistency and cycle-time reduction.

**Efficient**

NIR analysis is a fast, convenient and environmentally friendly analytical technique. Its accuracy is often equivalent to the wet-chemical methods that it replaces; precision is usually better. NIR test results are provided within 5-30 seconds, depending on the application. Identification and qualification of raw materials and quantitative analysis of components are easily accomplished with the press of a key or the click of a mouse. Speed, simplicity and measurement performance make NIR the ideal test method for the laboratory, QC and manufacturing environments.

**Reliable**

In parallel testing, NIR results routinely demonstrate excellent correlation and equivalency with compendial methods. Both the U.S. Food and Drug Administration and the Canadian Health Protection Branch have accepted NIR as an alternative method in specific applications. Both the European and U.S. Pharmacopoeia have accepted NIR as a general method. The American Society for Testing of Materials (ASTM) has adopted NIR as standard practice for analyzing liquid resins.
The XDS MultiVial™ Analyzer: Automated Analysis of Multiple Vials

The XDS MasterLab™: Automated Analysis of Multiple Tablets or Vials

The XDS Rapid Content™ Analyzer: At-Line and Laboratory QC

The XDS Liquid™ Analyzer: Liquid Analysis

The XDS SmartProbe™ Analyzer: 100% Raw Material Inspection

The XDS OptiProbe™ Analyzers: Laboratory Reactions and Scale-Up

The Rapid Content Analyzer (RCA) is designed for routine testing of incoming raw materials and process QC applications. Both solids and liquid suspensions can be analyzed on the RCA without removal from glass vials, plastic packaging or sample bags. Bulk liquids can be tested in standard laboratory beakers. With the optional Solids Module also non-homogeneous samples can be analyzed.

With the XDS MultiVial Analyzer composition or material identification testing is performed either in the laboratory or at-line, on samples in vials. The Analyzer supports acquisition of spectra in an unattended mode, freeing the operator to prepare other samples, analyze data, etc. The versatile sampling mechanism of the MultiVial Analyzer offers a movable (X-Y) sampling platform, suitable for handling a tray of multiple vials.

The XDS MasterLab offers pharmaceutical manufacturers a rapid, reliable test method covering the full array of solid dosage forms: layered, coated or cored tablets, capsules, caplets, geltabs and gelcaps. The versatile sampling mechanism of the MasterLab offers an automated and unattended reflectance or transmission analysis of a tray of multiple tablets or vials. Simply load the tray, insert it into the XDS MasterLab, and let the movable (X-Y) sampling mechanism properly position and analyze each tablet/vial.

Liquid solutions are easily measured for active and excipient ingredients using the Liquid Analyzer. It is designed for routine analysis of clear to opaque formulations. Programmable temperature control up to 65°C is standard. The Liquid Analyzer accepts inexpensive, single usage, disposable glass vials, so no cleaning is necessary between samples.

The SmartProbe Analyzer was developed to help manufacturers meet the requirement for 100% inspection of raw materials. The hand-held probe is trigger-operated and may be used to analyze powders or liquids with interchangeable probes. It brings rapid, convenient raw material testing to the QC or plant laboratory, receiving area or clean room.

The OptiProbe Analyzer is a convenient laboratory method development tool leading to process applications. Fiber optic modules are available for measurements in transmission, interactance-immersion or interactance-reflectance mode on liquids, semi-solids or powders. OptiProbe Analyzers also provide clean, simple measurements on clear to highly scattering liquid samples in beakers. For transmission measurements an optional high temperature module can heat samples to 200°C.
Based on XDS near-infrared technology, the FOSS NIR Process Analytics™ provides the next generation of process analyzers for real-time analysis in the pharmaceutical and chemical industries. Non-destructive, accurate measurements are performed directly in the process line, blender, dryer, or reactor. Typical measurements include reaction monitoring and end point determination in refinery, petrochemical and polymer processes, solvent recovery in pharmaceutical API (Active Pharmaceutical Ingredients) plants, and analysis of extruded polymer films and coatings.

The process analyzers can be configured to provide measurement for up to either 4 or 9 sampling points. This economical means of performing remote measurements enables the analyzer to be installed in an unrestricted area, reducing installation and operation costs. The patented, robust design of XDS Process Analytics supplies a new level of consistent, dependable and reliable instrument performance and analysis while operating in harsh industrial environments. All process analyzers are NEMA 4X/IP65 rated, ATEX approved and optional upgraded to hazardous area classifications (Class 1, Division 1; Class 1, Division 2; etc.).

**Validation and Compliance**

To comply with industry validation requirements for calibration and verification of equipment used for measurement and control of quality, all analyzers incorporate instrument performance verification (IPV™) routines to verify analyzer performance. All verification tests are performed using NIST traceable standards placed at the sample plane. A more extensive Instrument Performance Certification (IPC™) program that is performed on-site, semi-annually by trained and certified engineers, is available.

All FOSS industrial analyzers are supplied with the VISION™ software that is developed according to the stringent “Life Cycle Method” for software development and maintenance.

The pharmaceutical version of VISION is fully validatable and 21 CFR Part 11 compliant.
At FOSS, we are committed to meeting the evolving needs of pharmaceutical and chemical manufacturers. FOSS provides dedicated NIR analyzers that yield cost-effective and efficient NIR method development and routine implementation. The FOSS XDS NIR brings new levels of performance, reliability, versatility and efficiency to your applications. XDS NIR analyzers can be used throughout your manufacturing process – from raw material inspection and in-process testing to final product release.

XDS NIR analyzers are fully networkable analyzers that combine superior analytical performance with precise instrument matching to ensure seamless method transferability between XDS NIR analyzers.

The patented XDS NIR technology, combined with the modular design of XDS NIR Laboratory Analyzers, provides optimized analysis for powders, granules, pellets, solids, slurries, gels, pastes and turbid to clear liquids. The correct configuration is determined by your sample properties and measurement requirements.

Complementary, hot-swap-pable sample modules designed for your exact sample properties can be rapidly interchanged without disconnecting instrument power. This ability guarantees optimal analytical performance for all sample types without compromise.

XDS NIR provides improved accuracy and precision over existing NIR methods of analysis and expanded application opportunities. Since the wavelength, photometric and bandpass responses for all XDS NIR analyzers precisely match the master instrument response profiles, you can transfer both quantitative and qualitative methods directly from one XDS NIR analyzer to another, without adjustment.

XDS NIR delivers a new level of consistent, reliable and dependable performance. With integrated diagnostic routines and precise instrument matching, you are assured of equivalent analytical performance after maintenance, without adjustment to your models.
FOSS’ global distribution and support network ensure consistent product and application knowledge and superior customer support to over 65 countries worldwide. For more information on near-infrared analyzers from FOSS, contact your local FOSS office or visit us online at www.foss.dk.