

Technical Information

TYPICAL PERFORMANCE - FOSS XDS NIR Laboratory Analyzers

XDS NIR is the next generation of NIR instrumentation and is designed to ensure efficient and cost-effective NIR method development and implementation. Typical performance of XDS NIR as measured with standard materials placed in the analyzer sample location.

| Parameter | XDS Rapid Content™ Analyzer ¹ | XDS MultiVial™ Analyzer | XDS MasterLab™ | | XDS Rapid Liquid™ Analyzer | XDS SmartProbe™ Analyzer ² | XDS Interactance OptiProbe™ | XDS Transmission OptiProbe™ |
|--|--|--|--|--|--|--|--|--|
| Measurement Mode | Reflectance | Reflectance | Reflectance | Transmission | Transmission | Reflectance | Interactance | Transmission |
| Sample Interface | Direct analysis | Direct analysis | Direct analysis | Direct analysis | Cuvettes | Direct analysis | Direct analysis | Direct analysis |
| Wavelength Range | 400 - 2500 nm | 400 - 2500 nm | 400 - 2500 nm | 850 - 1600 nm | 400 - 2500 nm | 400 - 2500 nm | 400 - 2500 nm | 400 - 2500 nm |
| Sampling Modules | Hot-swappable | Hot-swappable | Hot-swappable | Hot-swappable | Hot-swappable | Hot-swappable | Hot-swappable | Hot-swappable |
| Detectors | Silicon (400-1100 nm), Lead Sulfide (1100-2500 nm) | Silicon (400-1100 nm), Lead Sulfide (1100-2500 nm) | Silicon (400-1100 nm), Lead Sulfide (1100-2500 nm) | InGaAs (Indium Gallium Arsenide) | Silicon (400-1100 nm), Lead Sulfide (1100-2500 nm) | Silicon (400-1100 nm), Lead Sulfide (1100-2500 nm) | Silicon (400-1100 nm), Lead Sulfide (1100-2500 nm) | Silicon (400-1100 nm), Lead Sulfide (1100-2500 nm) |
| Data Acquisition Rate | 2 scans/sec | 2 scans/sec | 2 scans/sec | 2 scans/sec | 2 scans/sec | 2 scans/sec | 2 scans/sec | 2 scans/sec |
| Spectral Data Interval | 0.5 nm | 0.5 nm | 0.5 nm | 0.5 nm | 0.5 nm | 0.5 nm | 0.5 nm | 0.5 nm |
| Noise (RMS, for 10 co-added, 10 second scans) | | | | | | | | |
| 400-700 nm | < 50 micro au | < 50 micro au | < 50 micro au | N/A | < 50 micro au | < 80 micro au | < 80 micro au | < 80 micro au |
| 700-2200 nm | N/A | N/A | N/A | N/A | N/A | < 30 micro au | < 30 micro au | < 30 micro au |
| 700-2500 nm | < 20 micro au | < 20 micro au | < 20 micro au | N/A | < 20 micro au | N/A | N/A | N/A |
| 850-1100 nm | N/A | N/A | N/A | < 30 micro au | N/A | N/A | N/A | N/A |
| 1100-1600 nm | N/A | N/A | N/A | < 20 micro au | N/A | N/A | N/A | N/A |
| Wavelength Accuracy (currently accepted standards) | < 0.05 nm (SRM 1920) | < 0.05 nm (SRM 1920) | < 0.05 nm (SRM 1920) | < 0.05 nm (FOSS NIRS Wavelength Standards) | < 0.05 nm (SRM 2035) | < 0.08 nm (SRM 1920) | < 0.08 nm (SRM 1920) | < 0.08 nm (SRM 1920) |
| Wavelength Precision³ | < 0.005 nm | < 0.005 nm | < 0.005 nm | < 0.005 nm | < 0.005 nm | < 0.008 nm | < 0.008 nm | < 0.008 nm |
| Wavelength Precision⁴ (instrument-to-instrument) | < 0.020 nm | < 0.020 nm | < 0.020 nm | < 0.020 nm | < 0.020 nm | < 0.025 nm | < 0.025 nm | < 0.025 nm |
| Stray Light | < 0.1% @ 2300 nm | < 0.1% @ 2300 nm | < 0.1% @ 2300 nm | < 0.1% @ 2300 nm | < 0.1% @ 2300 nm | < 0.1% @ 2300 nm | < 0.1% @ 2300 nm | < 0.1% @ 2300 nm |
| Photometric Linearity | < 1% of reading | < 1% of reading | < 1% of reading | < 1% of reading | < 1% of reading | < 1% of reading | < 1% of reading | < 1% of reading |
| Bandpass | 8.75 +/- 0.10 | 8.75 +/- 0.10 | 8.75 +/- 0.10 | 8.75 +/- 0.10 | 8.75 +/- 0.10 | 8.75 +/- 0.10 | 8.75 +/- 0.10 | 8.75 +/- 0.10 |

Footnotes: 1. Same data for the XDS Rapid Content Analyzer with Solids Module. 2. Based on reflectance-probe configuration. 3. Based on a single analyzer. 4. Based on a group of analyzers.

FOSS XDS NIR Installation Information

XDS NIR analyzers are designed to provide precise and accurate results while operating in harsh environments. Please observe the following guidelines when selecting and installing your XDS NIR instrument.

| | |
|---|---|
| Site Requirements | |
| Operating Temperature Range | 4.5°- 35°C (40°- 95°F) |
| Relative Humidity | 10 - 90% RH, non-condensing |
| NEMA Equivalency ⁵ | 12 |
| Weight | |
| <i>XDS Rapid Content™ Analyzer</i> | 68.7 lbs (31.2 kg) |
| <i>XDS MultiVial™ Analyzer</i> | 70.2 lbs (31.9 kg) |
| <i>XDS MasterLab™ Analyzer</i> | 71.2 lbs (32.4 kg) |
| <i>XDS Rapid Liquid™ Analyzer</i> | 75.5 lbs (34.3 kg) |
| <i>XDS SmartProbe™ Analyzer</i> | 62.7 lbs (28.5 kg) |
| <i>XDS OptiProbe™ Analyzer</i> | 62.7 lbs (28.5 kg) |
| Dimensions (w x h x d) | |
| <i>All XDS Laboratory Analyzers (except the XDS SmartProbe™ Analyzer)</i> | 18"x 15.25"x 22.5" (457mm x 381mm x 572mm) |
| <i>XDS SmartProbe™ Analyzer</i> | 18"x 17.5"x 32" (457mm x 445mm x 812mm) |
| Computer Requirements for Vision™ 3.1 and higher | |
| Processor | Pentium III or higher processor |
| Hard Diskdrive Capacity | 1 Gbyte |
| RAM | 512 Mbyte |
| Video Graphics | SVGA |
| CD-ROM | Required |
| Mouse or Pointing Device | Required |
| Printer Port | Required for printing |
| System Backup | Network or CD recommended |
| Network Address | Address assigned by Network DHCP server. If DHCP not available, permanent address assigned |
| Network Connection | 10/100 Based T connection, Ethernet RJ-45 connection |
| Computer Connection | UTP Crossover Cable for direct connections; standard network cable for network connection, RJ-45 connection |
| Operating Software | Microsoft Windows 2000/XP preferred Microsoft 95/98/ME/NT 4.0 compatible |
| Electrical Requirements | |
| Power Supply | Isolated or conditioned supply line |
| Operating Voltage | 100 - 240 VAC, 50/60 Hz |
| Current Use | 4 Amps |
| Power Consumption | 750 W maximum |

5. Rating reflects equivalent environmental protection.

Dedicated Analytical Solutions

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