SpectraStar™ XT

powered by **TAS Technology**

EQUIPMENT SERIES

- Highest Performance - Unmatched Accuracy and Reliability
- Built Tough for Plant Floor and Lab Environments
- Fast - Results in 30 Seconds or Less for Immediate Feedback
- Easy to Implement, Operate and Maintain
- Next Generation NIR - Patent Pending True Alignment™ Spectroscopy

Best NIR Value!

IDEAL FOR:

- Incoming raw materials
- At-line process testing
- Laboratory testing
- Final product release
- Labeling requirements
- Research

ROI is Typically Less than 6 Months:

Best in Class Performance

Wavelength precision < 0.005 nm

Wavelength accuracy < 0.02 nm

Full range noise < 20 uA

Absorbance range to 3 Au

The new SpectraStar XT series of Near Infrared Analyzers (NIR) offers outstanding accuracy and reliability for rapid analysis of unground, partially ground, or ground samples as well as liquids and slurries. Typical constituents measured are moisture, protein, fat, sugar and fibers as well as more difficult parameters such as ash and amino acids.

The scanning monochromator technology is used in over 80% of food and agricultural NIR installations. The next generation TAS monochromator technology delivers industry leading performance in an easy to use stand-alone instrument.

With an industry-first scan range to 2600 nm, the SpectraStar XT delivers additional information which may increase accuracy for constituents containing C-H aromatic and C-N-C amide bonds including: lignin, amino acids, protein and fibers.

Rugged and reliable, the XT analyzers are equally suitable for at-line installations in a production environment or a fully equipped research laboratory, providing great value and quick payback to optimize your analytical and process resources.

Highest Performance from the Ground Up

MADE IN USA

Manufactured in the USA, the SpectraStar XT uses only the highest quality components, locally sourced where possible, for outstanding performance and reliability.

POWERED BY TAS
TRUEAlignment™ SPECTROSCOPY
Patent Pending

TAS is an exclusive patent-pending technology that aligns instruments to standard reference materials (SRM) and then verifies using primary first principle standards in the factory.

- *High Resolution Touch screen LED display*
- *Integrated Windows®7 Computer with Intel® Celeron™ Quad Core Processor and 160 GB Solid State Drive*
- *Powerful and rugged grating drive motor with go-to technology for precise movement of holographic grating*
- *Custom electronics including low noise detector boards, self-diagnosing and upgradeable controller board, and ultra-stable power supplies*
- *High resolution encoder for extremely accurate and precise wavelength registration*
- *Multi-cup adapter for easy analysis of powders, coarse granular materials, pellets, liquids and slurries*
- *Versatile communication options including 4 USB ports, 2 Ethernet ports, 1 VGA and 1 Serial port*
- *Sealed case with no fans, filters or water cooling for reliable operation in dusty environments*
- *High throughput monochromator with scanning range to 2600 nm*
- *5 watt lamp with high efficiency optical bench provides high signal / noise without the need for additional cooling*
- *High quality optics with over 99% transmission through 3400 nm for artifact free collection of light*
- *Custom dual-cooled InGaAs detectors for high sensitivity, low noise and long life*

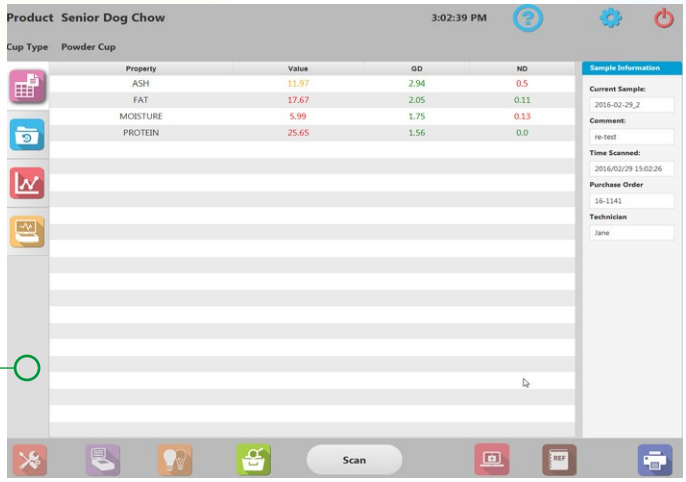
Green Technology

Environmentally friendly analytical option with minimal energy use and no hazardous chemicals or waste.

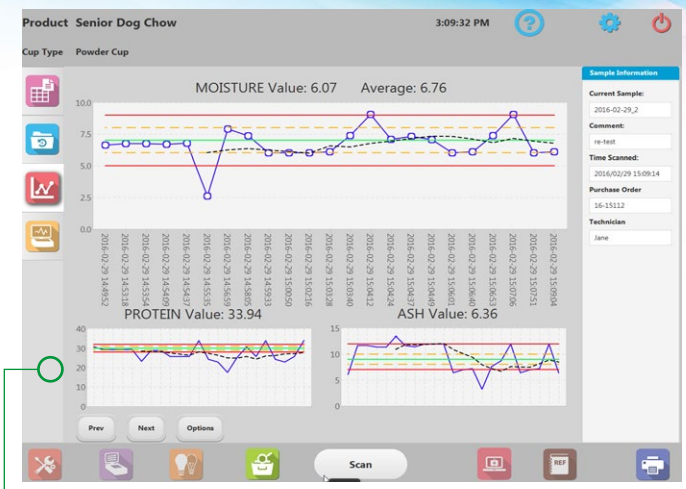
Unity Scientific

SpectraStar™ XT
powered by **TAS Technology**

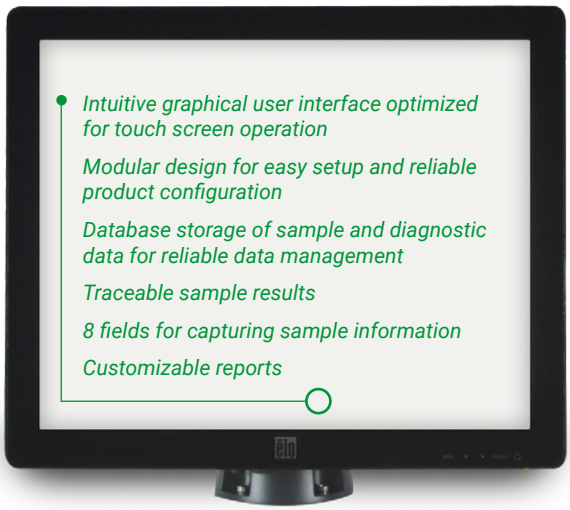
Easy Operation with UScan Routine Analysis Software



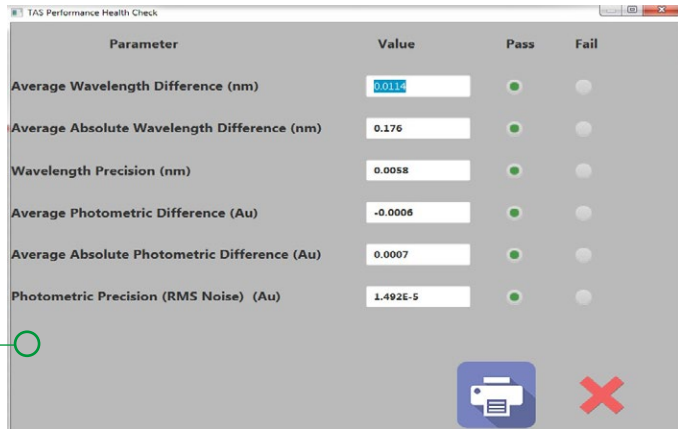
Versatile results display with warning and action displays for outlier and product limits



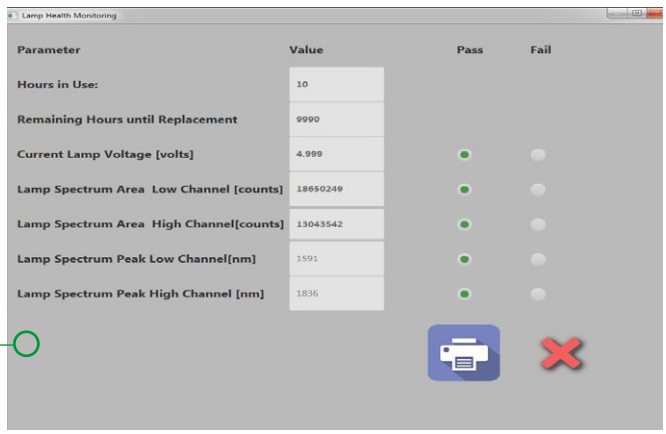
Configurable SPC view displays control charts for three constituents enabling immediate process control



- *Intuitive graphical user interface optimized for touch screen operation*
- *Modular design for easy setup and reliable product configuration*
- *Database storage of sample and diagnostic data for reliable data management*
- *Traceable sample results*
- *8 fields for capturing sample information*
- *Customizable reports*



Built-in TAS routines to evaluate instrument performance and re-calibrate if necessary



Integrated instrument diagnostics evaluate key components and indicate any errors or faults

Unity Scientific

SpectraStar™ XT
powered by **TAS Technology**

Easy Implementation

One difference between Unity and other NIR suppliers is our attention to detail and our level of care, support and service before, during and after installation. We deliver solutions that are easy to install, operate and maintain, minimizing the resources required. We strive to deliver the best customer experience.

Installation and Training

The SpectraStar XT is designed for easy setup and configuration. Upon delivery, a factory trained product specialist will perform TAS diagnostics to verify instrument performance and then install calibrations and set up products according to your requirements.

Products can be setup with specific outlier and constituent limits and SPC charts to provide immediate feedback to the operator about each sample. An automatic export to a LIMS or other external data system can also be easily configured.

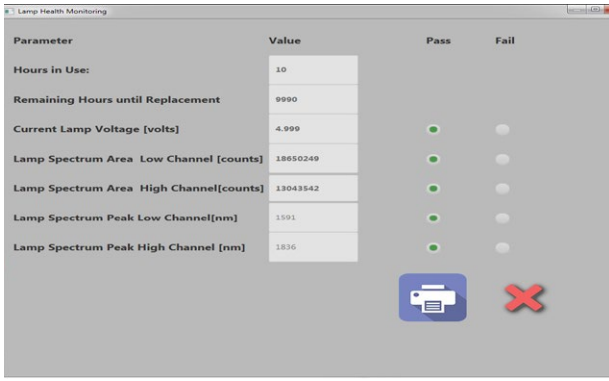
As part of the installation, the Unity product specialist will train the operator and managers in all aspects of routine operation, configuration, diagnostics and data management.

Hassle-Free Maintenance

The SpectraStar XT instruments are designed to be easily maintained by the customer, thereby decreasing downtime and maintenance costs.

The lamp has a 10,000 hour life and can be easily monitored in the main program and changed by the user. TAS aligns the instruments back to factory specifications for interruption-free operation.

The instrument itself is designed for long life and reliability with quality components and no fans, lasers, desiccators or cooling systems to fail.

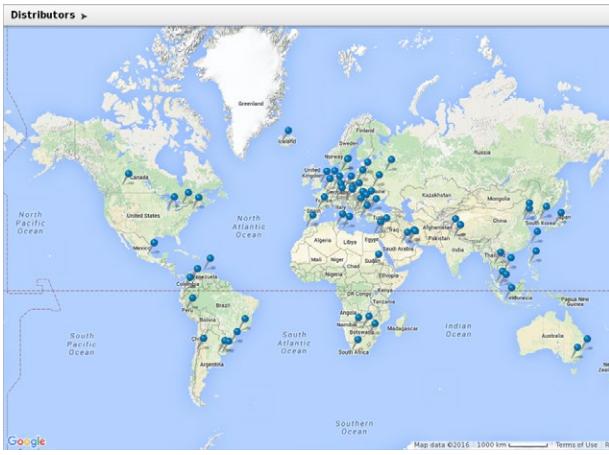


World Class Support

Unity boasts some of the finest technical specialists in the world. Our employees have an average of 20 years of experience implementing NIR technology on most NIR brand models.

Our global support staff can provide consulting, installation, training applications support, calibration development, database management, software support, and hardware repair.

Unity offers customized instruction and support packages to fit your needs and ensure that you get full value from your analytical investment.



Unity Scientific

SpectraStar™ XT
powered by **TAS Technology**

Specifications Table

Dimensions /W x D x H) mm	330 x 381 x 508 mm (with display) 330 x 381 x 270 mm (without display)		
Weight	18 kg, 40 lbs.; 22 kg, 48 lbs. with monitor		
Power Voltage	100-240 V AC *, frequency 50-60 Hz, Class 1, protective earth		
Light Source	Tungsten halogen lamp with MTBF rating of 10,000 hours, User changeable via pre-aligned assembly		
Measurement mode	Reflectance or transflectance		
Detector	High Performance ultra-cooled InGaAs extended range detector(s), dual stage temperature stabilized		
Optical Bandwidth	10.0 ± 0.3 nm Actual FWHM		
Spectra Resolution	Spectral Resolution is an actual 1.0 nm without interpolation, up to 0.5 nm available.		
Absorbance range	Up to 3 AU		
Analysis time	10 – 60 sec. (20 scans / sample = 40 s)		
Wavelength accuracy	< 0.02 nm to traceable standard reference material		
Wavelength precision	< 0.005 nm		
Wavelength temperature stability	No effect = 0 nm/°C		
	2600XT-R	**2600XT**	**1400XT**
Wavelength range	680 - 2600 nm	1100 - 2600 nm	1400 - 2600 nm
Number of data points	1920	1500	1200
Photometric noise full range	< 20 µAu	< 20 µAu	< 20 µAu
680 - 1100 nm	< 20 µAu	N/A	N/A
1100 - 2500 nm	< 15 µAu	< 15 µAu	N/A
1400 - 2500 nm	< 15 µAu	< 15 µAu	< 15 µAu
Number of detectors	2	2	1
Degree of protection	IP52 completely sealed, no venting or fan; IP65 optional		
ISO 12099 Compliant	Animal feedstuffs, cereals and milled cereal products - Guidelines for the application of near infrared spectrometry.		
User Interface			
Operating System	Windows 7 Embedded		
Display	17” touch screen, high resolution		
Networking	LIMS compatible OPC compliant HDMI Port 4 USB ports		
Installation requirements:			
Ambient temperature	1 - 40°C		
Storage temperature	-20 to 70°C		
Ambient humidity	< 95% RH, < 85% RH recommended		
Mechanical environment	Stationary during use		
EMC environment	Laboratory use, Industry requirements		

* Mains supply voltage fluctuations not exceeding ±10% of the rated voltage.

Unity Scientific

SpectraStar™ XT
powered by **TAS Technology**

SpectraStar™ XT

powered by **TAS Technology**

Ordering Information:

SpectraStar XT analyzers are available in several configurations that offer different features and capabilities. Please consult with your Unity sales professional to determine which one is right for your application. All SpectraStar XT analyzers come with the following:

Built-in Windows 7 computer with 17" touch screen, InfoStar software, keyboard and mouse, manuals and accessory kit, Unity TAS standards. Sample cups must be ordered separately.

Models available:

Model	Order Number	Description
1400XT	US-1400-XT1	Reflectance monochromator (1400 – 2600 nm), Static Top Window Configuration, static cup adapter
1400XT	US-1400-XT3	Reflectance monochromator (1400 – 2600 nm), Rotating Top Window Configuration, multi-cup adapter, ISI/powder cup adapter ring
2600XT	US-2500-XT1	Reflectance monochromator (1100 – 2600 nm), Rotating Top Window Configuration, multi-cup adapter, ISI/powder cup adapter ring
2600XT-R	US-2500-XT3	Reflectance monochromator (680 – 2600 nm), Rotating Top Window Configuration, multi-cup adapter, ISI/powder cup adapter ring

Accessories Available:

- Small and large sample cups, forage cup, ring cups
- Petri dish adapters
- Liquid sampling options including gold reflector sets and temperature-stabilized flow-through cells

Optional Software Available:

- UCal™ Chemometric software for custom calibration development, monitoring and validation of results

Unity Scientific
117 Old State Road | Brookfield, CT 06804 USA
Phone: 203-740-2999 | Fax: 203-740-2955
www.unityscientific.com | email: info@unityscientific.com

Unity Scientific Asia Pacific
Unit 7/ 84-90 Old Bathurst Rd , Emu Plains. NSW, Australia
Phone: 02 4735 1813
www.unityscientific.com.au sydney@unityscientific.com.au