



**LUXON ION SOURCE®**  
The fastest process for  
mass spectrometry

# The Future is now with the Luxon Ion Source®

based on the patented LDTD® technology

Couple the Luxon Ion Source® to your Thermo Scientific™ mass spectrometer and attain an analysis runtime of less than 1 second. This apparatus is the second-generation sample introduction and ionization source based on the LDTD® technology for mass spectrometry.

Versatile multicomponent system adjustable to your bench setup :



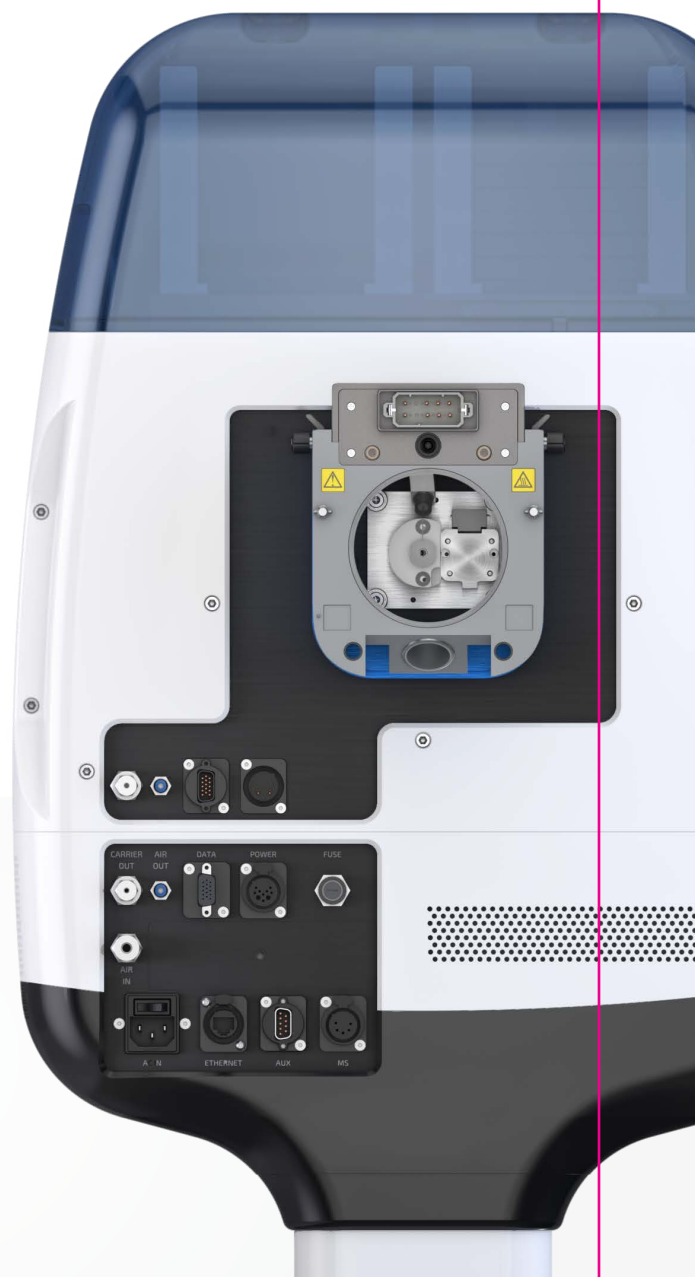
# Imagine your runtime under 1 second!

Luxon Ion Source® offers outstanding analytical performance through several features :

- ▶ < 1 second sample-to-sample analysis
- ▶ Plug-and-play
- ▶ Low volume samples
- ▶ No carry over, no memory effect
- ▶ Uninterrupted automated workflow
- ▶ No liquid waste management

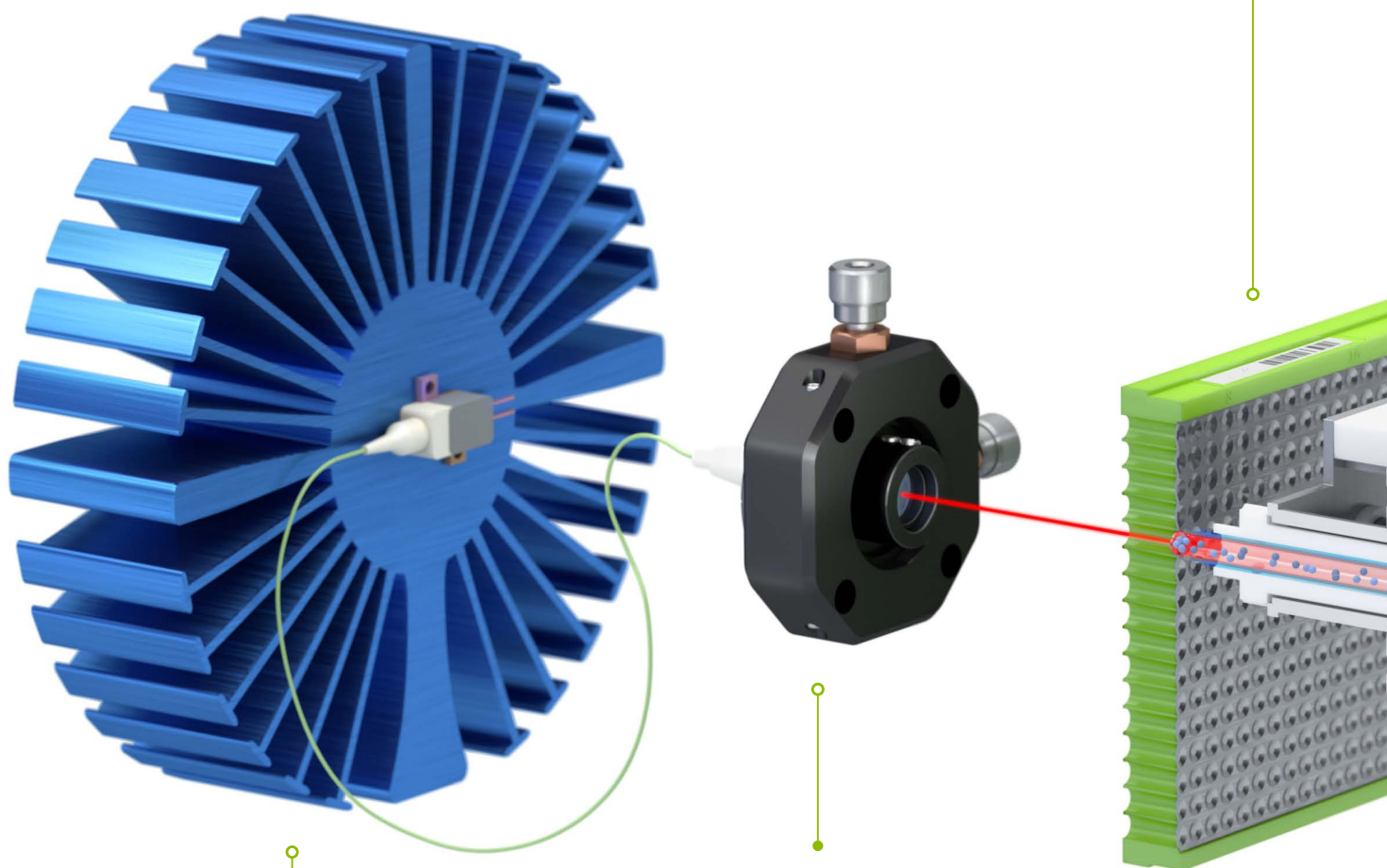
***Watch the Luxon Ion Source® in action by scanning the QR code***

or find it on Youtube :  
[youtu.be/KuSVNptfVgY](https://youtu.be/KuSVNptfVgY)



# Luxon, an Ion Source at the Speed of Light

## Laser Diode Thermal Desorption, the heart of the technology



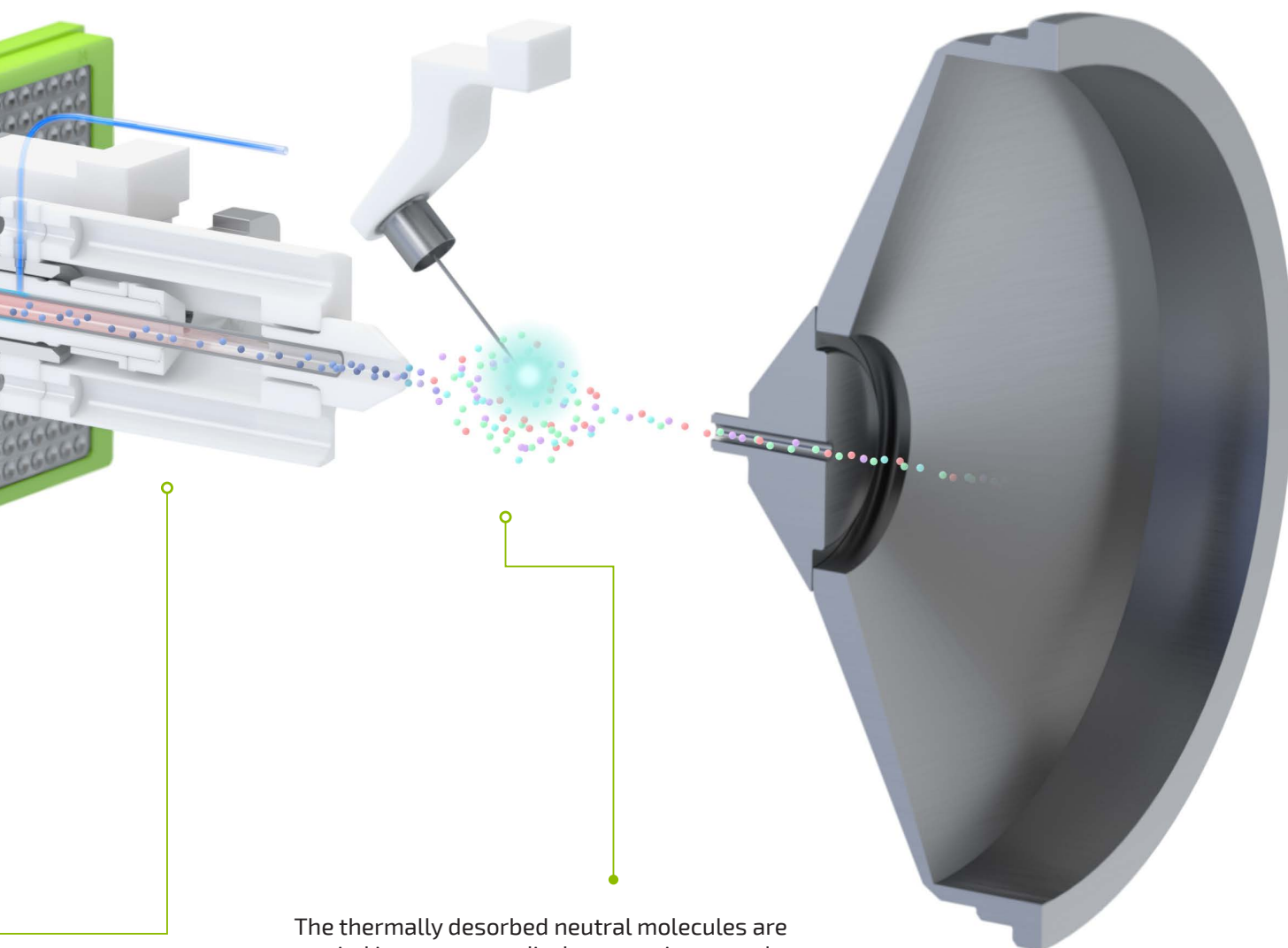
A cooled Fiber-Coupled Laser Diode Array and a heatsink to disregard room temperature variations.

The Fiber Optic Collimator allows unmatched thermal uniformity at the back of the LazWell plate without having to directly interact with the sample.

The rapid and robust pneumatic design ensures that the gas-phase neutral molecules are carried from the LazWell plate to the mass spectrometer inlet while sealing the transfer tube to avoid any sample loss.

# This entire process takes less than 1 second

A low-volume sample (50nl-10 $\mu$ l) is deposited on the LazWell plate and then fully dried. The patented LazWell design allows for the formation of a precisely centered nanolayer on the well surface.



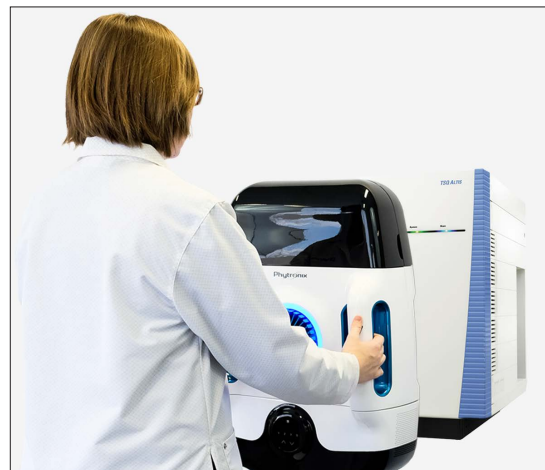
The thermally desorbed neutral molecules are carried into a corona discharge region to undergo ionization. High-efficiency protonation and strong resistance to ionic suppression characterize this type of ionization and is the result of the absence of solvent and mobile phase.

# Other features of Luxon Ion Source®

## **Plug-and-play**

LIGHT-WEIGHT AND EASY TO USE

With the Luxon Ion Source® you can now easily switch between your LC and Luxon within minutes! It is simple to install and remove which allows you to run your mass spectrometer and analyze your data as usual. The Luxon Ion Source® provides a robust walk away solution.

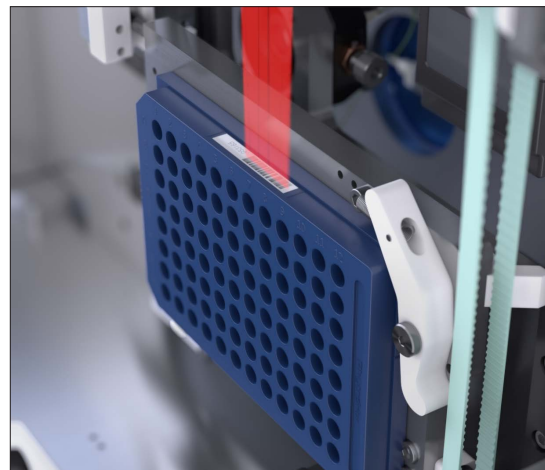


Easily install Luxon Ion Source® on your TSQ Altis™

## **Traceability**

LUXON FOLLOWS YOUR SAMPLES FOR YOU

The Luxon Ion Source® contains an incorporated barcode reader for an optimal traceability of your samples which makes it an ideal solution for regulated environments. The Luxon Ion Source® driver is supported by most Thermo Scientific™ mass spectrometers.

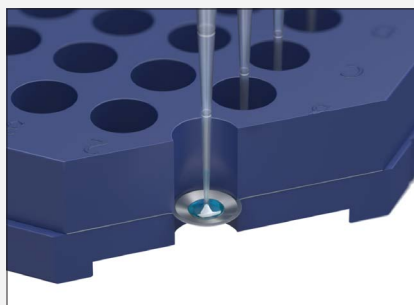


All LazWell™ plates are automatically scanned by Luxon to insure traceability

## **24/7 Process for mass spectrometry**

LUXON TAKES CARE OF YOUR SAMPLES WHILE YOU'RE AWAY

The Luxon Ion Source® can be coupled with a robotic arm and a liquid handler for a completely automated solution, allowing you to run millions of samples without interruption and in a record time. It can also be delivered with a fully-integrated software workflow solution – from liquid handling batch files to the LIMS.



Use your preferred liquid handling system,



pair it with a robotic arm



and let it feed your samples to Luxon Ion Source®



# LazWell™ plates

Our patented LazWell™ plates work exclusively with the LDTD® technology to provide accurate and reproducible results at incredible speed with microvolumes to decrease the cost per sample dramatically. Manufactured in a highly controlled environment, all LazWell™ models are barcoded on two sides ensuring a perfect fit with the volume-dispensing precision and sample traceability of conventional liquid handling systems.



## LazWell™

The original LDTD® technology well-plate. It is used for most analyses and is designed to hold microvolumes. Each well can hold up to 10 µL for 96-well model, 2.5 µL for the 384-well model and 1 µL for the 1536-well model, depending on the solvent used.

## LazWellHDE

### HIGH DESORPTION EFFICIENCY

Based on the original LazWell™, this plate is used for samples containing a high ratio of solvents with low surface tensions (MTBE, EtAc, etc). The added coating reins in the solvents, which makes it possible to deposit a larger volume of **organic matrices** in each well.



## LazWellDEC

### DESORPTION ENHANCING COATING

Specifically designed to analyze molecules in clean matrices, the coating on this plate increases the desorption of **carboxylic acids** and **lipids**. Drug discovery has never been easier.

## LazWellAD

### ACID DESORPTION

Seal the deal with this screening tool. It can be used to desorb any and all molecules, whether acidic or basic, and is especially useful for analyses in loaded matrices. This is the perfect plate for **drug tests**.



Choose your LazWell™ based on your Luxon model :

Models	LazWell™	LazWellHDE	LazWellDEC	LazWellAD
Luxon S-960 fits with	LazWell96	LazWell96-HDE	LazWell96-DEC	LazWell96-AD
Luxon S-3840 fits with	LazWell384	LazWell384-HDE	LazWell384-DEC	LazWell384-AD
Luxon S-15360 fits with	LazWell1536	LazWell1536-HDE	LazWell1536-DEC	LazWell1536-AD

# Combine the Luxon Ion Source® with Thermo Scientific™ Mass Spectrometers : Orbitrap™, Triple Quadrupole and Ion Trap families

The Luxon Ion Source® is fully integrated on Thermo Scientific™ mass spectrometers and is THE ULTIMATE SOLUTION for ultra high-throughput in quantitative and qualitative analyses.

## *Luxon Ion Source® is completely integrated on :*

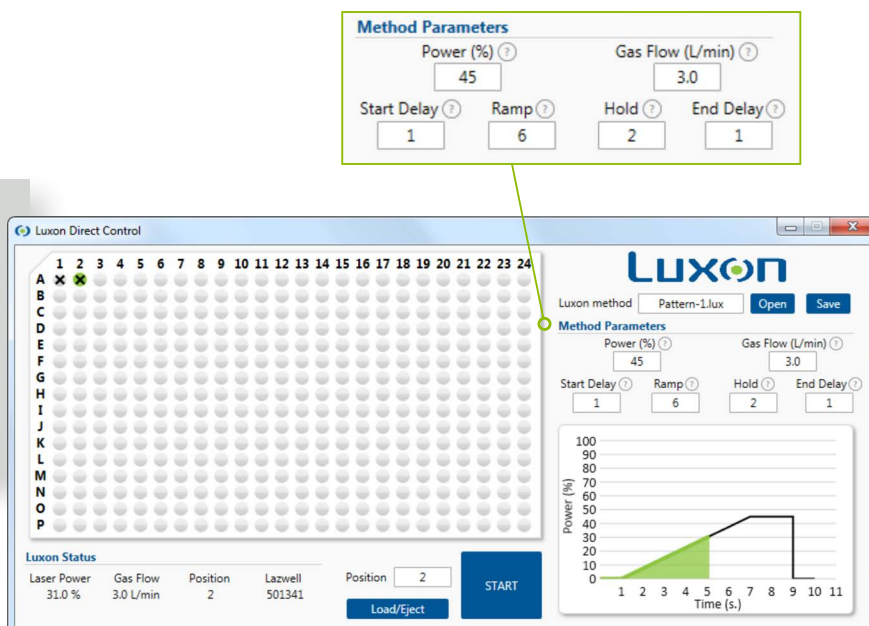
- **Orbitrap™ mass analyzers** : The disruptive power and speed of Luxon Ion Source® redefines high-resolution, accurate-mass (HRAM). With Luxon Ion Source® coupled to an Orbitrap™ system, get the best of both worlds - the speed and resolution to create high-throughput workflows. Luxon is compatible with the entire portfolio of Orbitrap-based MS systems.
- **Triple Quadrupole mass spectrometers** : Combine the speed of the Luxon Ion Source® with the robustness of Thermo Scientific™ TSQ Triple Quadrupole mass spectrometers and attain unmatched runtime for your high throughput targeted quantitation workflows.
- **Ion Trap mass spectrometers** : The ultra-fast polarity switching of the LTQ family matches the Luxon Ion Source® perfectly for an enhanced high sensitivity analysis of unknowns.



Luxon Ion Source®/Q Exactive™ Plus

## LUXON DIRECT CONTROL SOFTWARE

Our Direct Control software offers a fast track for manual tuning while developing a method. Watch your peak take shape in real time!





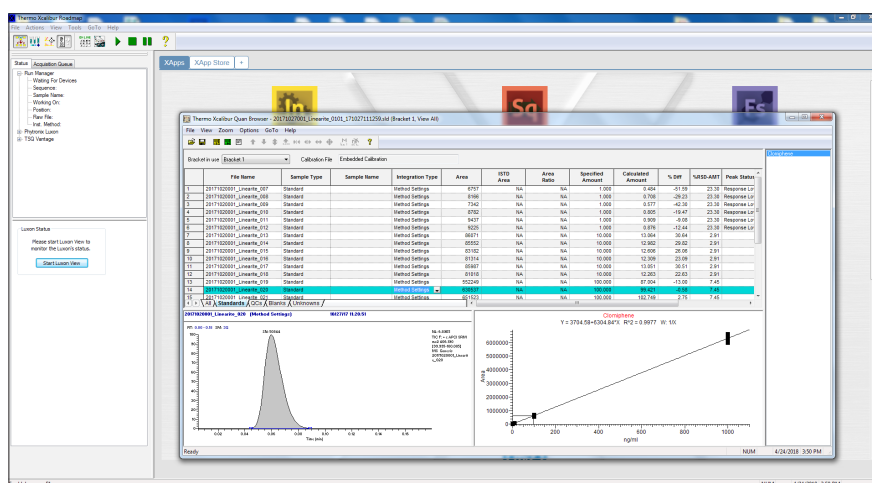
# Complete integration within Thermo Scientific™ Softwares

Luxon Ion Source® was not only designed to be compatible with MS hardware from Thermo Scientific™, but also to be controlled by softwares created by Thermo Scientific™ through our Luxon driver.



## Xcalibur™ Software

Thermo Scientific™ Xcalibur™ Software is the single point of control for the Luxon Ion Source®. Your Luxon batch launches will be identical to your HPLC's.

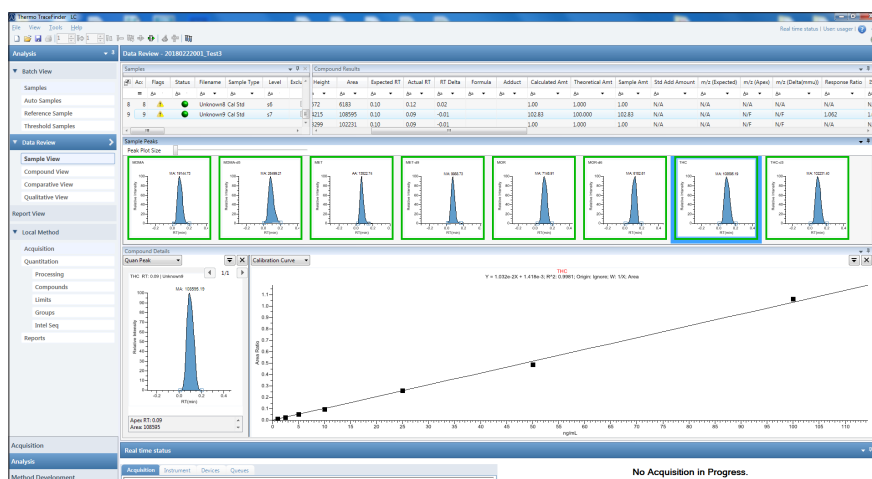


Phytronix Luxon Driver  
integration with  
Xcalibur™ Software



## TraceFinder™ Software

The complete integration of Luxon Ion Source® with Thermo Scientific™ TraceFinder™ Software boosts mass spectrometry to a new level of productivity.



Luxon Ion Source®  
integration with  
TraceFinder™ Software

COMPATIBILITY

# Luxon Ion Source® can be used for various applications such as :

## Pharmaceutical Applications

### DRUG DISCOVERY AND DEVELOPMENT

The Luxon Ion Source is a quantitative solution for **High-Throughput Screening** environments thanks to its sub-second runtime.

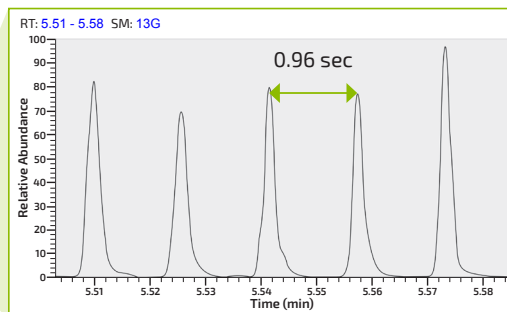
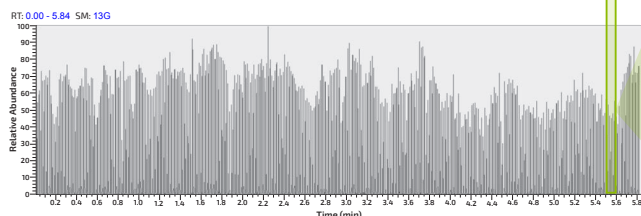
#### Perform both In Vitro and In Vivo assays such as :

- CYP Inhibition Assays
- Permeability Assays
- Microsomal and Plasma Stability
- Pharmacokinetic Studies (ADME Assays)
- Dried Blood Spot Analysis



This speed of readout would be suitable in an HTS environment that calls for <1 s/ sample. In addition, the low volume requirements for LDTD analysis offer the option of miniaturizing some assays, which was previously unattainable. Therefore, the described method can be adopted to execute HTS campaigns using a number of label-free assays: other ADME-Tox assays, enzyme assays, G protein-coupled receptor (GPCR) endpoints, biomarkers, phenotypic screening, and so on.

Haarhoff et al., Journal of Biomolecular Screening  
2016, Vol. 21(2) 165–175



## Food and Environment Applications

PESTICIDES – PHARMACEUTICALS – STEROIDAL HORMONES IN WASTE WATER –  
TRACE ANALYSIS OF EXPLOSIVES IN SOIL – MORE...

The Luxon Ion Source® meets the industrial needs for quality control in terms of robustness, reproducibility and absence of carryover.

#### Analyze pathogens in complex matrices such as :

- Boar taint components in pork fat
- Neonicotinoids in honey or water
- Carbendazim in orange juice
- Antibiotics in meat
- Mycotoxins in animal feed



A rapid instrumental at-line method for simultaneous measurement of androstenone and skatole in back fat samples from entire male pigs has been developed. With an automated sample pre-treatment, it will be possible with a single LDTD-MS/MS system to keep up with a line speed of 360 male pig carcasses per hour and to run 16 hours per workday. Cost of operations is expected to be below 0.7€/carcass.

Borggaard et al., 63rd International Congress of Meat Science and Technology, 13th and 18th August 2017, Cork, Ireland

## Clinical Applications

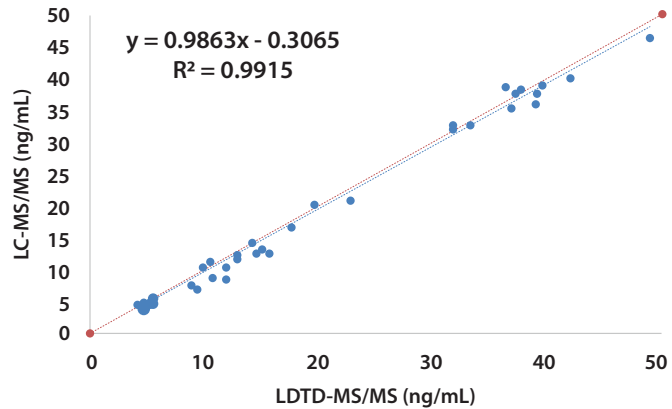
IMMUNOSUPPRESSANTS - ANTI-RETROVIRAL - THERAPEUTIC DRUGS - ETC.

The Luxon Ion Source® is a robust, rapid and precise solution with your Thermo Scientific™ mass spectrometer for clinical applications.



It is capable of completing the quantification of hundreds of samples, in less than 30 minutes, of a multitude of molecules in various matrices such as :

- Testosterone in plasma
- Cholesterol in serum
- Cotinine in human plasma
- Biomarker creatinine in serum
- Immunosuppressant drugs



## Forensic and Toxicology Applications

PAIN MANAGEMENT - DOPING - FORENSIC - NEWBORN TESTING - MORE...

The Luxon Ion Source® is a quantitative solution for forensic and toxicology laboratories thanks to its many features such as traceability, sub-second runtime and low-volumes required for analysis.



We have used the Phytronix LDTD source for several years and have reported out over a 1,000,000 combined tests on LDTD/MS-MS instruments, and of course have submitted many proficiency samples with never an error [...] it made a 16-hour run by LC decrease to a 15-minute run for 96 samples, and greatly decreased sample volumes required, so fewer QNS samples ...

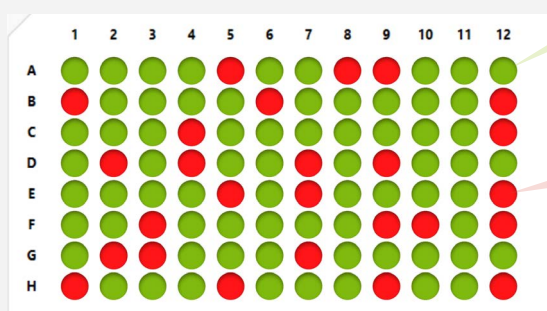
Director of Toxicology Lab

Perform quantitative analysis of over 120 compounds with Luxon Ion Source® such as :

- Cannabinoids (Natural and Synthetic)
- Street Drugs (Heroin, Cocaine etc.)
- Pain Management Drugs (Fentanyl, Oxycodone etc.)
- Antidepressant Drugs

## FULL WORKFLOW SOLUTION FOR CLINICAL AND TOXICOLOGY APPLICATIONS

From Sample Prep to Go/No-Go Decision Making



Sample #1485245485  
Concentration: 42 ng/mL  
NEGATIVE

Sample #2496843187  
Concentration: 189 ng/mL  
POSITIVE, CONFIRMATION  
REQUIRED



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