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 Waters 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
Luxon, an Ion Source at the Speed of Light
Laser Diode Thermal Desorption, the heart of the technology

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.

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

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

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.
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.

A low-volume sample (50nl-10μl) 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.

This entire process takes less than 1 second
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.

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 Waters mass spectrometers.

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.

Other features of 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:

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Combine the Luxon Ion Source® with Waters Triple Quadrupole and QTof Quadrupole Time-of-Flight Mass Spectrometers

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

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

- **QTof Quadrupole Time-of-flight Mass Spectrometry:** The disruptive power and speed of Luxon Ion Source® redefines the high-resolution Waters Quadrupole Time-of-flight MS systems. With Luxon Ion Source® coupled to Waters QTof Mass Spectrometer, experience the fastest tandem that meets the needs of challenging qualitative and quantitative applications.

- **Triple Quadrupole Mass Spectrometry:** Combine the speed of the Luxon Ion Source® with the sensitivity of Waters Triple Quadrupole mass spectrometer and attain unmatchable runtime without compromise for your lab automation.

**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!
Luxon Ion Source® was not only designed to be compatible with Waters’s MS hardware, but also to be fully controlled by Waters’s softwares through our Luxon driver.

**MassLynx™ Software**

MassLynx™ Software is the single point of control for the Luxon Ion Source®. Your Luxon batch sample launches will be identical to your UPLC.

**TargetLynx™ Software**

TargetLynx™ is the perfect complementary software for high-throughput targeted quantification and confirmation analyses for Luxon Ion Source®-MS/MS.
The 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.

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

**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

**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.

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

**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
**Clinical Applications**
IMMUNOSUPPRESSANTS - ANTI-RETROVIRAL - THERAPEUTIC DRUGS - ETC.

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

**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 we 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

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**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