Q8 MAGELLAN

High-end stationary vacuum spectrometer
The re-definition of premium

Q8 MAGELLAN offers all the features that define a premium spark spectrometer:

- improved vacuum optic concept
- turbo-molecular pump available
- air-conditioned temperature stabilisation for rough environments
- digital plasma generator
- channeltron photomultiplier technology
- unrestricted single-spark detection
- time-resolved spectroscopy for every channel with up to four gatings
- heavy duty, low-maintenance spark stand with co-axial argon technology
- optimised argon system with ArgonStop® feature
- comprehensive software package

„It’s a kind of fun to do the impossible“ (Walt Disney)

This quote became our motto during the development of the best spark spectrometer: Q8 MAGELLAN! A system that can read up to 1000 single sparks in up to 128 channels simultaneously; time-resolved spectroscopy with up to 4 gating times per channel; a light-efficient optical system with 750 mm focal length, and a high resolution grating with 2400 or 3600 grooves/mm; a reciprocal dispersion of 0.26 nm/mm in second order.

These are some of the benchmarks that Q8 MAGELLAN is setting. Never before a spark spectrometer offered such far reaching possibilities to give you outstanding performance in metal analysis!

Steel plants and other demanding metal industries require high-performance spark spectrometers
The new matrix: QMatrix

With Q8 MAGELLAN you can perform an analysis without touching the mouse or keyboard! But once you find out about the possibilities offered, and how simple it is to use, you never want to miss it again!

The analysis desktop of QMatrix does not only give you the results, average, and statistics but also colour information about the compliance of your sample with a given specification. The grade library offers internal/external limits, reference to international norms, a version control, and a quick find option.

The calibration software provides secure access to all calibration information. The same programme is used during factory calibration and provides a full list of features from regression wizard to auto-calculation of inter-element effects.

For post-analytical data treatment the SQL database application provides everything needed. From archive to statistics, filters, views, reporting, Office export, AuditTrail and much more.

At your service

Although each Q8 MAGELLAN has an integrated webserver and you could easily use remote online support, we also like to talk to you personally. Call our local service or the headquarter in Germany. We will be pleased to assist you with all the questions you may have around your Q8 MAGELLAN.

QMatrix - spectrometer software

From running measurements to auto-averaging, coloured quality control display, e-mail results, to setting up TRS and visualize single sparks: individual user level definitions give every user what he needs.

QMatrix Reg - calibration software

Thanks to the perfect factory calibration of your system, most customers are not using the comprehensive calibration software.

Analyses database

The SQL database application is fast and safe. A comfortable tool for all your post-analytical data treatment demands. With its networking capabilities you may see what’s going on at the instrument from any PC in your network.
The devil is in the details

... and this is why our engineers have looked into every single of them. With surprising results: ease of operation with a pneumatic sample clamp, a self-centering plate, or the possibility to perform an analysis without touching mouse or keyboard. And many more are there to discover...

A sense of fresh air in the spark stand - new co-axial argon flow

The new co-axial argon flow represents the culmination of our efforts to further improve performance. It focuses the argon directly on the burnspot, where it is needed. This allows to use ArgonStop®, a function to switch off argon flow during stand-by, saving on gas consumption, reducing start-up phase of the instrument, and finally dramatically improving the analytical performance especially on small samples and thin wires.

A new flow cycle spring-cleans the chamber, allowing you in many matrices to run thousands of samples without opening the spark stand plate.

Your application in focus

Single or multi-base applications, trace analysis or alloys, Q8 MAGELLAN can be configured for virtually any metal analysis requirement. With up to 128 channels and widest Rowland segment it combines high flexibility with the proven advantages of a single optic vacuum system.

Prepared for tomorrow’s needs

A vast choice of applications is available for Q8 MAGELLAN. During factory calibration internationally certified standards are individually sparked on every instrument. An expert evaluates the data to ensure highest accuracy and analytical quality.

For more exotic requirements a team of application specialists help to develop new methods to meet your needs. The new and extended features of Q8 MAGELLAN offer improved results on known analytical tasks and open new fields of applications.

There are no problems, but challenges!
Innovative technologies

Let’s face the facts!
Photomultipliers are the first choice detectors for demanding metal applications. And the channel photomultiplier (CPM) by far outperforms the bulb-type photomultiplier tubes (PMT)! Higher dynamic range, highest sensitivity, extremely low dark count are its key features. This makes it the ideal detector for all sorts of metal applications from high concentrations to sub-ppm traces. At the same time, it requires less space in the optical system and has a robust, simple design. Switch it on and it is instantly stable, no warming-up time required. Even strong magnetic fields hardly affect the gain. Designed for decades of high performance.

But the detector is only one component in an optical system. In order to benefit most from the CPM we have optimised our vacuum optic: due to a re-designed exit slit, refractors could be banned; a new mounting concept makes optical assembly fast and allows for simple line additions. The small CPMs combined with an extended Rowland segment gives the best wavelength coverage in this instrument category.

Together they’re strong!
A fast and sensitive detector requires an equally powerful read-out. You could read about important benchmarks on page one already. All these help to provide you with lower detection limits, improved precision, outstanding long-term stability, and a long system lifetime.

The single-spark detection improves performance by statistical means, allows for new algorithms for soluble/insoluble determination, helps to quantify inclusions, and many more innovative analytical techniques.

A digital, maintenance-free source generator helps to create a stable plasma. This allows for synchronisation with the read-out and, thus, to make use of time-resolved-spectroscopy. Source parameter can be software optimised to hit the best excitation potential of an analyte.

Unlimited, free combination of all excitation- and read-out parameters offer unseen opportunities to revolutionize the analytical performance of many applications.

Get to see a Q8 MAGELLAN soon and find out, how it can solve your analytical challenges.
Technical specifications

Optical system
- Paschen Runge / 750 mm
- Wavelength range: 110 nm – 800 nm
- Channel photomultiplier detectors
  Highest anode sensitivity
- Very stable and low dark current
- Up to 128 analytical channels
- Single vacuum optic

Read-out system
- Time-resolved reading of single sparks
  Individually settable integration windows for all analytical channels with simultaneous acquisition of each single spark
- Scalable and microprocessor controlled read-out system
- Use of modern and programmable electronics for time-critical jobs
- Integrators are matched to detector characteristics
- High-quality PCI data recording board with a sampling rate up to 250 kHz

Instrument control
- Communication
  Use of Ethernet and TCP/IP between PC and instrument as well as for all instrument internal communication

Source
- Digital generation of any discharge current curve through programmable logic modules
- Integrated emergency stop
- Maintenance-free, inductive ignition
- Discharge time 10 µs to 2 ms
- max. 200 A peak current
- max. 1000 Hz spark sequence

Software
- Analysis software with integrated single spark evaluation
- Material quality monitoring with dynamic internal and external limit check
- Material identification of unknown samples
- Analysis management
  Integrated analysis management using SQL data base
  Storage, sorting, filtering, display, searching, printing, archival
  Comprehensive statistic evaluation,
  SPC charts (option), certificate
- Email supported reporting system
- Integrated systems for diagnosis and maintenance via internet or telephone
- Provide efficient service at short term

Electrical data
- 230 V -15 % / +10 % or 115 V -15 % / +10 % (50/60 Hz)
- 950 W during measurement, 350 W standby
- 16 A slow blow fuse or 25 A slow blow fuse

Weights & Dimensions
- 1200 x 980 x 1350 mm / 47 x 39 x 53” (W x H x D)
- Weight ~ 660 lbs. / 300 kg

*CPM working principle graphics by courtesy of Olympus Corp., Windows is a registered trademark of Microsoft Corp.