

Bruker **AXS**



S8 LION^{'''}

● Spectrometry Solutions

think forward

WDXRF

Power & Performance

In elemental analysis for process control there is only one thing that counts: to obtain the most accurate and precise results as fast as possible! This kind of top-rate performance can only be achieved and maintained over time by means of an ideal combination of maximum sensitivity, compact beam path, and optimal channel geometry.

The LION's share: sixteen channels royally tuned for the 26 elements most important to the industrial sectors of cement, industrial minerals and mining, and a XRD free-lime channel – unique!

S8 LION – enjoy the power of sixteen – 24/7/365.





S8 LION – Leader of the power pack

Simultaneous XRF: S8 LION^{'''} – leader of the power pack

100,000 cubic meters of raw material, 10,000 tons in daily production, 80 tons of loading volume - the dimensions and expenses in industrial sectors such as cement, mining and industrial minerals are gigantic.

The investments are correspondingly big and production has to keep on running and running. Not just because of the costs, but primarily for process stability, all processes must function reliably, smoothly and maintain the same high quality. It goes without saying that all raw materials, intermediate compounds and final products must be monitored in real time and the resulting analytical requirements are inevitably very strict.

When selecting the best analytical system the lab manager is therefore faced with questions of principle with far-reaching consequences:

- 1) Which analytical method is best for continuous, fast and reliable process monitoring?
- 2) Does the method provide analysis results that allow very exact and comprehensive process control?
- 3) Can the analytical system deal with the industrial samples without any problems and also deliver process-relevant information?
- 4) Does the analytical system function absolutely reliably, is it easy to operate, can it be automated and are the operating costs low?
- 5) Which system can offer all of this?

The answers are simple.

Firstly: **X-ray fluorescence!**

Secondly, thirdly and fourthly: **Yes!**

And fifthly: **The S8 LION!**

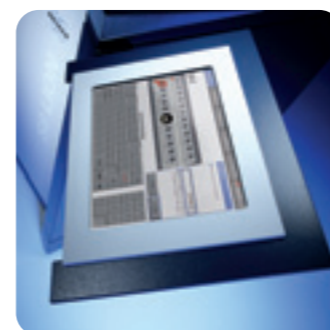
After all, no other analytical method is as economical and reliable as X-ray fluorescence analysis. And no other system delivers as much concentrated power, perfect performance and engineered quality as the S8 LION.



S8 LION – Leader of the power pack



S8 LION



TouchControl™



SampleCare™ – Tube above



USB – Ethernet Connection



Bent Crystals



Flexible sample handling



X-ray warning lights



Automated sample loader



Automation interface



EasyLoad™



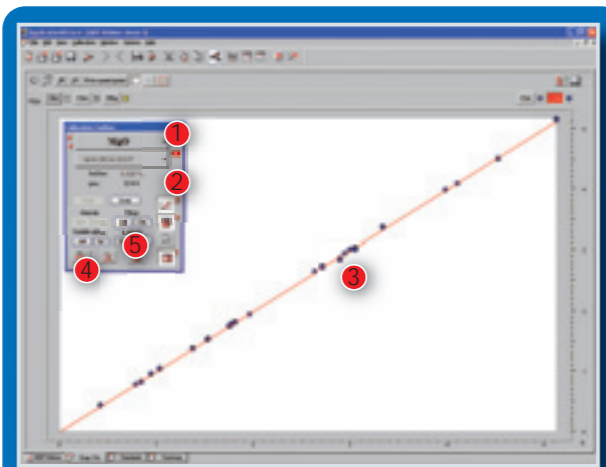
Process samples



S8 LION status

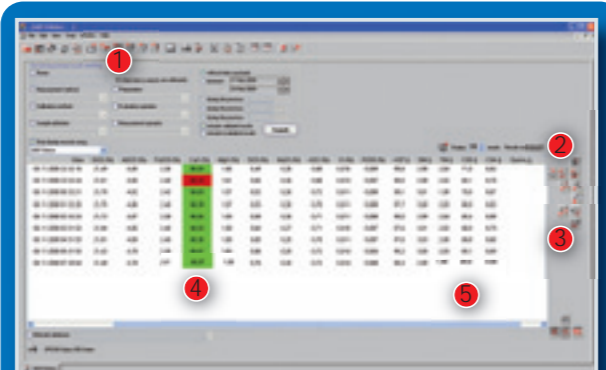


S8 LION – simple operation



CALIBRATION

- ① Element with selected analytical line
- ② Calculated deviation of the calibration
- ③ Calibration curve
- ④ Matrix correction model: FP, variable alpha model, empirical, theoretical, ...
- ⑤ Offset



REPORTING

- ① Database query: date, sample ID, operator, method ...
- ② Number of matching entries
- ③ Data export: xml, txt, clipboard, ...
- ④ Display of element concentrations, color-coded limit check
- ⑤ Display of modules, calculated element ratios, ...

SPECTRA^{plus} – all you ever need

Obviously you want to know more about calibration, evaluation and reporting. You need to have maximum functionality paired with extremely easy operation. May we present to you: SPECTRA^{plus}!

We will keep it short: Our SPECTRA^{plus} software package is all you need to deal with even the toughest challenges in process analysis.

However, we will proceed step-by-step, exactly as we do in SPECTRA^{plus}. Simply follow SPECTRA^{plus} – from the definition of the standard samples, through the preparation parameters, the creation of the calibration curves through to release of the application. All the necessary tools – including matrix correction models – are available to you.

SPECTRA^{plus} helps you not only to calibrate the element channels, but also supports the free-line channel with fixed positions and interactive scanning.

You create reports quickly and easily, calculate your own modules or element ratios and establish color-coded warning and alarm limits ... just go ahead, it's no problem because you can do it all with SPECTRA^{plus}.

S8 LION and SPECTRA^{plus} – the rest is self-explanatory.

- Ergonomic and quick sample loading
- Reliable and fail-safe analysis
- GLP-compliant data protection
- Designed for the highest instrument uptime
- Island operation with TouchControl™ and integrated PC

The ultimate in ease-of-use – S8 LION™

How much training is required to operate the S8 LION? None, thanks to TouchControl™!

This is because operation is incredibly easy: the user places a sample in the magazine and taps the touchscreen once. The predefined automatic measuring program starts at once and delivers the result: right on time, good as done.

Behind the scenes, the predefined measuring program automatically assigns the name, transmits the measured data to the control center or the LIMS system and immediately displays the result on the screen.

Of course, as the lab manager you can define priority samples and make adjustments at any time. You can also run the S8 LION in the self-sufficient island mode. But you always have access to the system and to all data via the integrated network connection.

With equal ease you can automatically start the measuring job for reference and calibration samples. For this purpose the S8 LION fetches the sample out of the automatic EasyLoad™ and puts it back there again.

S8 LION with TouchControl™ makes PC/QC simply safe!



Easiest operation with TouchControl™

1
The measurement of any sample is as simple as it could be: Just place the sample in the magazine and select the application! Perfect for industrial use: All routine applications are quick start buttons!

2
Quick: Now you type in the sample ID. Direct on the touchscreen, no hassle with a PC, mouse or keyboard: Simply press "MEASURE" to analyze! There is nothing to remember, it's simply step-by-step.

3
Instant results: Each result is displayed on the touchscreen, sent to the printer and stored in the results database. Limit values are checked automatically and reported color coded. Different user access levels protect relevant data!



TouchControl™:

- Easiest operation due to intuitive touchscreen interface: Three steps to accurate results!
- No operator training required
- Standalone operation in tough environments (no PC, mouse or keyboard)
- Unmatched data integrity: Routine analysis is separated from advanced tasks like calibration, evaluation, and extended reporting
- Online language switch with free selection: English, German, French, Chinese, Russian, Spanish, Korean, Turkish, Portuguese, Italian, ...
- Tailored for industrial environments, "round-the-clock" operation

Teamwork at its best:
 you define the task;
 we deliver the **S8 LION**[™]
 ready for action!



► **Cement**

- Limestone
- Raw mix
- Clinker
- Cement

► **Industrial Minerals**

- Alumina
- Bauxite
- Quartz
- Dolomite
- Iron ores
- Zircon sands
- ...

Element	Line	Crystal	Absorber	Detector		Information
				FC	SC	
Cement – Basic Elements						
Na	Kα	XS-55	no	x		Raw mix control
Mg	Kα	XS-55	no	x		Raw mix control
Al	Kα	PET	no	x		Raw mix control important for fusion process
Si	Kα	PET	no	x		Raw mix control
S	Kα	Ge111	no	x		Raw mix control
K	Kα	Ge111	no	x		Raw mix control
Ca	Kα Kβ	LiF200 LiF200	yes no	x x		Raw mix control
Fe	Kα	LiF200	no		x	Raw mix control, important for color and fusion process
Cement – Advanced Needs						
Free Lime	CaO	XRD-Channel	no	x		Process optimization by CaO
P	Kα	Ge111	no	x		Control (source: secondary fuels)
Cl	Kα	Ge111	no	x		Prevent corrosion, harmful to hydration process, cyclone blockage
Cr	Kα	LiF200	no	x		Chromate reduction, toxic
Mn	Kα	LiF200	no		x	Important for color
Zn	Kα	LiF200	no		x	Toxic, (source tyres TDF)
Sr	Kα	LiF200	no		x	
S ²⁻	Kβ	Ge111	no	x		Sulphur speciation: Slags, raw materials
Element	Line	Crystal	Absorber	Detector		Information
Additional Elements for Industrial Minerals						
Ti	Kα	LiF200	no	x		Titanium minerals TiO ₂
V	Kα	LiF200	no	x		Impurities
Co	Kα	LiF200	no		x	Impurities
Ni	Kα	LiF200	no		x	Nickel laterite, impurities
Cu	Kα	LiF200	no		x	Impurities
Rb	Kα	LiF200	no		x	
Zr	Kα	LiF200	no		x	Zircon sands
Nb	Kα	LiF200	no		x	Impurities
Mo	Kα	LiF200	no		x	Ores, impurities
Ba	Lα Lβ	LiF200	no		x	Toxic, Barytes, impurities
Hf	Lα	LiF200	no		x	Impurities
Pb	Lα Lβ	LiF200	no		x	Toxic, impurities

Technical Data

Systems	S8 LION 3K	S8 LION 4K
X-ray power	3 kW 60 kV max. / 150 mA max.	4 kW 60 kV max. / 170 mA max.
Configurations:		
Monochromators	Up to 16 element channels or free-line channel plus up to 13 element channels	
Absorbers	Up to 6 absorbers (50%, 80%, 95% - silver or stainless steel)	
Detectors	Proportional flow counters with windows: 0.6 µm, 1.5 µm, Sealed proportional counter: 25 µm Be, Scintillation counter	
Sample handling	8 position Cups 10 position 51.5 mm sample rings 12 positions 40 mm sample rings ONLINE 8 positions 51.5 mm sample rings with conveyor belt ONLINE 9 positions 40 mm sample rings with conveyor belt	
Vacuum system	Vacuum pump integrated	
EasyLoad™¹⁾	Automated sample drawer with 12 positions for 51.5 mm steel rings or 14 positions for 40 mm steel rings	
TouchControl™¹⁾	Integrated touchscreen for easy and intuitive operation	
Power consumption	7 kVA	
Connection	208 – 230 V (50/60 Hz) 40 A single phase, 32 A three phases	
Dimensions	193 cm x 84 cm x 118 cm (height x width x depth) 76" x 33.1" x 46.4" Touchscreen: allow additional 49 cm (19.3") 560 kg / 1235 lbs	
Cooling water	Flow rate 0 – 15 L/min, pressure: 4 to 6 bar with no back pressure, Temperature: 10 to 20 °C	
Compressed air	6 – 8 bar, oil free, 7 L/min Compressor, oil-free, silent, 50 Hz (K130C57) Compressor, oil-free, silent, 60 Hz (K130C58)	
Detector gas	P 10 gas (10% methane, 90% argon) required for proportional flow counters	
Quality & safety	DIN EN ISO 9001:2008 CE-certified Fully radiation-protected system; radiation < 1 µSv/h (H ⁺) Conform to ICRP, IAEA, EURATOM - approved by TÜV, PTB	

1) optional packages

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