



**METAL SCIENTIFIC**  
Measure with Precision

## M4 OPTICAL EMISSION SPECTROMETER



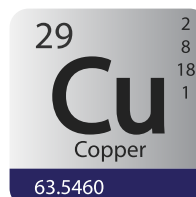
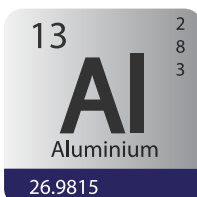
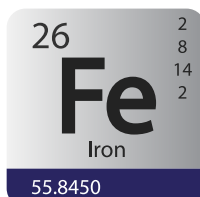
6 CMOS

Vacuum System

On-Site  
Calibration

2 Point  
Re-Calibration

Focal Length:  
300 mm



**Economical & accurate Metal Analyzer**

# Technical Data for M4

	Item	Index	
<b>OPTICAL SYSTEM</b>	Focal Length	300 mm	
	Wavelength Range	165 nm - 589 nm	
	Detector	6 High resolution CMOS detectors	
	Light chamber	vacuum type optics system	
	Pixel resolution	30 $\mu$ m	
	Grating line	3600m <sup>1</sup> /mm	
	First order spectral line dispersion rare	1.2nm/mm	
	Average resolution ratio	10pm/pixel	
			Full spectrum
			Light chamber temperature is controlled automatically
<b>SPARK SOURCE</b>	Type	Digital arc and spark source	
	Spark frequency	100-1000HZ	
	Discharge current	1-400A	
	Ignition voltage	>15000V	
	Excitation light	Optimization of discharge parameters design High energy precombustion technology HEPS	
	Processor	High-speed data synchronization acquisition and processing	
<b>SPARK STAND</b>	Electrode	Tungsten electrode technology	
	Make up	Thermal deformation self-compensation design	
	Argon flushed with minimal consumption of Argon		
	Spray discharge electrode technology		
	Adjustable electrode technology		
<b>OTHERS</b>	Measurable elements	C, Si, Mn, P, S, Fe, Cr, Al, Cu, Ni, Ti, Co, Zn, Sn, Mg, Pb etc.	
	Dimension	714mm(L)*558mm*270mm(H)	
	Weight	About 40kg	
	Storage temperature	0°C-45°C	
	Operating temperature	10°C-35°C, 23±2°C is recommended	
	Power	AC220V/50Hz(Customized)	
	Power consumption	Excitation:400W/Stand by:50W	
	Argon quality	99.999%, Argon pressure>4Mpa	
	Argon consumption	5L/min during spark mode	
	Interface	Ethernet data transmission based on DM9000A	

# Main Features

## 1 Optical system with superior performance

1. The Paschen-Longge structure concave grating, full spectrum coverage, meets the customer's need for full element detection.
2. Direct optical technology and use optics made with MgF2 materials ensure optimum performance in the UV region.
3. High resolution multi-CMOS readout system, lower dark current, better detection limit, higher stability, stronger sensitivity.

## 2 Fully intelligent vacuum measurement and control

1. The vacuum system is fully programmed to reduce the running time of vacuum pump while ensuring the vacuum.
2. The two-stage setting turns on the standby vacuum operation state when the instrument is not running.
3. Multi-stage vacuum isolation measures and the addition of oil filter devices ensure that optical components work in a reliable environment.

## 3 Humanized sample spark stand design

1. The spark stand directly introduces the spark light into the optical system.
2. Open sample stage for large sample testing requirements.
3. Change electrodes provide better performance for small sample and complex geometry samples.

## 4 Simple argon flow design

1. Intelligent argon flow design and dust collection and cleaning device.
2. The unique argon jet technology effectively eliminates the drift of the plasma during the spark process, ensuring that the CMOS detector can observe the high-temperature regional light signal, improving accuracy and stability.
3. After sparking, pulsed argon purge improves dust removal and improves instrument short-term and long-term stability.

## 5 Large energy digital spark light source

1. Fully digital intelligent composite light source DDD technology brings superior analytical performance.
2. The compact design and semiconductor control technology make the light source more stable and more reliable.
3. High-energy pre-combustion technology(HEPS), spark parameter adjustment, fully meet the excitation requirements of different substrates, different samples and different analytical elements.

## 6 Dedicated spectral analysis software

1. The international spectrometer produces a standard dedicated spectrometer software with user-friendly interface and standardized functions.
2. The instrument is equipped with multiple factory calibration curves and more material analysis methods and advanced solutions in the software.
3. The upper and lower limits of the standard curve can be extended on site according to the material requirements of the user.





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