Integrated Microcomputer Sulfur Analyzer Automated Coulometric Total Sulfur Determinator

Item Number: KT-DL

Introduction

Engineered for rapid total sulfur determination, this integrated microcomputer sulfur analyzer unites automated coulometric titration, dual stage combustion, and precise PID thermal control. The system delivers fast, repeatable analysis for coal testing, metallurgical quality control, and geological research laboratories.

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Application	Description	Key Benefit
Coal Mining and Coal Washing	Quantitative screening of total sulfur in raw run-of-mine coal, washed clean coal, and middlings to verify commercial grade and washability efficiency.	Delivers ASTM/GB-compliant data within 8 minutes, allowing on-the-fly sorting and immediate quality certification prior to transport.
Thermal Power Utilities	Monitoring total sulfur concentrations in pulverized coal feeds, boiler fuels, and residual fly ash for emissions monitoring and flue gas desulfurization (FGD) control.	Prevents boiler tube corrosion and ensures strict compliance with environmental sulfur dioxide emissions regulations through rapid fuel batch verification.
Metallurgical Coke and Steelmaking	Determining sulfur trace levels and concentrations across coking coal blends, metallurgical coke, iron ore pellets, sintered ores, and finished steel products.	Prevents hot-shortness and structural embrittlement in steel alloys by ensuring rigorous quality control over carbonaceous and mineral inputs.
Geological Exploration and Core Analysis	High-throughput elemental sulfur evaluation of drill cores, sedimentary strata, sulfide ores, and geochemical prospecting samples.	High baseline sensitivity down to low fractional percentages enables precise geological boundary mapping and mineral reserve grading.
Cement and Lime Manufacturing	Measuring combustible sulfur in alternative fuels, raw meal mixes, limestone, and kiln dust to balance clinker sulfur-to-alkali ratios.	Prevents unwanted preheater ring formations, stabilizes kiln operation, and ensures consistent physical performance of final cement products.
Commercial Testing and Inspection Bureaus	Third-party quality verification and analytical certification of bulk mineral commodities, coal stockpiles, and solid fuels.	Automated coulometric endpoint detection eliminates operator subjectivity and manual titration bias, providing legally defensible test reports.

Specification Category	Parameter	Standard Value / Operational Range
Model Designation	Equipment Code	KT-DL
Analytical Range	Sulfur Determination Range	0.00% to 30.00% Total Sulfur
Analysis Duration	Total Per-Sample Cycle Time	Approximately 8 min (Preheating dwell: 45 s at 700°C; Combustion dwell: 4 to 7 min at 1050°C)
Analytical Method	Titration Principle	Automated Coulometric Titration (Compliant with GB/T 214-2007 and GB/T 214-1996)
Combustion System	Heating Element	Silicon Carbide (SiC) Heating Rod (Nominal Resistance: 10 Ω)
Combustion System	High-Temperature Zone Length	≥ 90 mm
Combustion System	Operating Furnace Temperature	1050°C ± 5°C (Fully adjustable up to 1100°C)
Combustion System	Temperature Control Precision	Grade 1.0 (0°C to 1100°C span)
Temperature Measurement	Thermocouple Sensor	External S-Type (WRP) Platinum-Rhodium 10 - Platinum (Pt-Rh10/Pt)
Thermal Dynamics	Heating Ramp Rate	25°C to 30°C / min (Reaches 1050°C operating state in ≤ 30 min)
System Readiness	Thermal & Chemical Stabilization	5 to 8 min from initial startup

Specification Category	Parameter	Standard Value / Operational Range
Electrolytic Vessel	Cell Working Volume	400 mL Borosilicate Chamber
Electrolytic Electrodes	Electrolytic Platinum Electrode	1.0 cm × 1.5 cm Platinum Foil Surface
Electrolytic Electrodes	Indicating Platinum Electrode	0.5 cm × 1.0 cm Platinum Foil Surface
Automation & Drive	Sample Boat Positioning	Motorized Carriage with Electronic Switch Limit Detection
Control & Readout	Human-Machine Interface	Built-in Industrial Microcomputer, Color Display, PC Membrane Keypad
Data Output	Printout Capability	Integrated Micro-Printer for Automatic Test Result Reports
Electrical Standards	Electrical Equipment Compliance	Designed in strict adherence to GB 4793.1-1995 Laboratory Safety Requirements
Electrical Requirements	Power Supply Voltage	220 V AC ± 20%, 50 Hz
Electrical Requirements	Maximum Power Consumption	≤ 2000 W (Peak heating phase)