DITEE ICP-OES SWORD 510
Product Specification Sheet

Product Introduction



The DITEE ICP-OES SWORD 510 is a high-end inductively coupled plasma optical emission spectrometer based on full-spectrum direct reading technology. It integrates an exceptional optical system, a scientific-grade detector, and a fully digital solid-state RF generator, setting a new benchmark in the field of elemental analysis for accuracy, stability, and analytical efficiency. The SWORD 510 is committed to providing high-end laboratories with comprehensive, high-speed, simultaneous analytical solutions for elements ranging from ultra-trace to major levels, meeting the most demanding scientific research and industrial quality control requirements.

Main Functions and Features

- **Full-Spectrum Direct Reading Technology:** Supports simultaneous acquisition across the full wavelength range, offers fast analysis speed, and is suitable for high-throughput detection.
- **High-Resolution Optical System:** Utilizes an echelle grating and CCD detector, with an optical resolution ≤ 0.007 nm.
- **Intelligent Analysis Software:** Features automatic line identification, background correction, interference correction, and supports data export and report generation.
- **Stable RF Generator:** Power range 500-1600W, continuously adjustable in 1W steps, ensuring stable plasma excitation.
- **Flexible Sample Introduction System:** Supports multiple sample types; optional configurations for hydrofluoric acid-resistant, high-salt, and organic samples are available.
- **Modular Design:** Facilitates maintenance and upgrades; supports extended functions like dual-view observation and autosamplers.

Technical Specifications

Item	Specification Description
Instrument Type	Full-Spectrum Direct Reading Inductively Coupled Plasma Optical Emission Spectrometer
Optical System	Echelle Grating + CCD Array Detector
Wavelength Range	165——870 nm
Optical Resolution	≤ 0.007 nm (at 200 nm)
RF Generator Frequency	27.12 MHz
RF Power Range	500——1600 W, 1 W adjustable
Detector Type	High-Efficiency Semiconductor-Cooled CCD Area Array Detector
Observation Mode	Axial, Radial Dual-view (Optional)
Repeatability	RSD < 1.0 %
Stability	RSD < 1.5 %
Detection Limit	Typical element detection limits can reach ppb level
Sample Introduction System	Peristaltic Pump; Autosampler optional
Gas Control	Fully Automatic Three-Channel Gas Control (Plasma Gas, Auxiliary Gas, Carrier Gas)
Software System	ICP Spectrometer Analysis Software, Lifetime Free Upgrades
Power Requirements	AC 220 V±10%, 50/60 Hz, Standard equipped with 10 kVA Voltage Stabilizer
Cooling Method	External Circulating Chiller, Cooling Capacity 2000 W
Communication Interface	USB, LAN

Standard Configuration List

1. Main Unit System

	Product Code	Name	Remarks
	A-101-012-003	ICP-OES-SWORD 510 Main Unit	The ICP-OES SWORD 510 is a high-performance full-spectrum direct reading ICP-OES, featuring high precision, high stability, high sensitivity, etc., suitable for rapid quantitative and qualitative analysis of multiple elements in various samples.

2. Software & Documentation

No.	Name	Qty	Unit	Remarks
2.1	ICP Spectrometer Analysis Software	1	Set	Lifetime Free Upgrades
2.2	Product Quality Certificate	1	Set	Chinese
2.3	USB Drive (Software & Documents)	1	Pc	
2.4	Warranty Card	1	Pc	

3. Accessories & Consumables

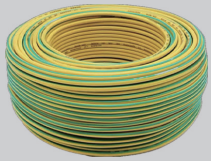
3.1 Gas Path System

	Product Code	Name	Purpose Description
	H-103-001-001	Argon Pressure Regulator	Controls argon output pressure, ensures gas stability
	H-103-002-001	PU Tubing (10×6.5×1.75mm)	Main gas path connection, pressure and wear-resistant
	H-103-003-001	PU Tubing (6×4×1mm)	Auxiliary gas path or drain line
	H-103-004-001	PVC Clear Tubing (8×6mm)	Used for chiller water or waste liquid visual line
	H-103-005-001	Tubing Adapter (ZCJH-2*6)	Connects 6mm ID and 2mm ID tubing
	H-103-006-001	Tubing Adapter (ZC-1/16×3/32)	For 1.6mm and 2.4mm inner diameter conversion

3.2 Sample Introduction & Nebulization System

	Product Code	Name	Purpose Description
	H-103-011-001	Sample Capillary Tubing (OD=2.38mm, ID=0.8mm)	Sample introduction capillary, corrosion resistant
	H-103-012-001	Peristaltic Pump Tubing (Φ1.65)	Sample delivery, acid/alkali resistant, long life
	H-103-013-001	Cylindrical Spray Chamber Cap (PTFE)	Protects spray chamber, corrosion resistant
	H-103-014-001	O-Ring (32.5×3.55)	Spray chamber seal, prevents gas leakage
	H-103-015-001	O-Ring (5.6×1.8)	Small port interface seal
	H-103-016-001	Quick Connector (Φ6)	Quick connection for gas or water lines
	H-103-017-001	Ball Joint Clip (L00091181, Ø=10)	Secures ball joints, prevents disconnection

3.3 Electrical & Safety Accessories

	Product Code	Name	Purpose Description
	H-103-007-001	Grounding Braid (4mm²)	Equipment grounding, prevents static interference
	H-103-008-001	Grounding Rod (500mm)	Buried grounding, ensures safety
	H-103-018-001	Fuse (10A, 250V)	Power supply protection
	H-103-019-001	Fuse (6.3A, 250V)	Control circuit protection

3.4 Other Consumables & Tools

	Product Code	Name	Purpose Description
	H-103-009-001	Filter Cartridge (OD 60mm, ID 28mm)	Gas or chiller water filtration
	H-103-010-001	RF Coil Assembly	Core component for plasma excitation
	H-103-020-001	Torch Installation Tool	Special tool for torch installation/removal

	Product Code	Name	Purpose Description
	H-103-021-001	Silicone Tubing (ID 2mm/OD 4mm, Hardness 55)	Waste drain line
	H-103-022-001	Plastic Bucket (5L)	Waste liquid collection

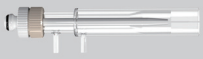
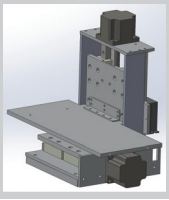
4. Standard Equipment

	Product Code	Name	Purpose Description
	F-101-016-001	Main Unit	Control and data processing
	F-101-016-002	Monitor	
	F-101-016-004	Network Cable (3 meters)	Cat5 Twisted Pair
	F-101-016-005	Circulating Chiller (2000W)	Forced cooling for generator, coil, etc.

	Product Code	Name	Purpose Description
	F-101-016-006	Voltage Stabilizer (10kVA)	Ensures voltage stability
	F-101-016-007	USB Extension Cable (3 meters)	Peripheral connection

V. Optional Equipment (Optional Configurations)

	Product Code	Name	Purpose Description
	H-103-023-001	Quartz Torch (1.2mm)	Routine aqueous sample analysis
	H-103-024-001	Double-Pass Spray Chamber (Scott)	Improves aerosol uniformity
	H-103-025-001	Concentric Nebulizer	High sensitivity sample introduction
	H-103-026-001	Cyclonic Spray Chamber	For use with concentric nebulizers, etc.
	H-103-027-001	HF-Resistant Nebulizer	Teflon material, for samples containing HF

	Product Code	Name	Purpose Description
	H-103-028-001	HF-Resistant Spray Chamber	Teflon material, for samples containing HF
	H-103-029-001	HF-Resistant Torch	Alumina center tube, demountable, for samples with HF
	H-103-030-001	High-Salt Nebulizer	Resists high-salt samples, clog-resistant
	H-103-031-001	High-Salt Torch (2.0mm Quartz)	Resists high-salt samples, clog-resistant
	H-103-032-001	Organic Sample Torch (0.6mm Quartz)	For volatile organic sample analysis
	F-101-016-009	Organic Sample Introduction Cooling System	For low-temperature introduction of volatile organics
	H-103-033-001	Corrosion-Resistant Peristaltic Pump Tubing	Resistant to acids, alkalis, organic solvents
	F-101-016-011	Dual-view Observation Upgrade	Enhances detection capability for low-concentration elements
	F-101-016-012	43-Position Autosampler	High-throughput automated analysis