



S6 SIRIUS

Laboratory Optical Emission Spectrometer



Dimensions: H 1275 mm; D 790 mm; W 540 mm.
Weight: 140 Kg

S6 SIRIUS is the new Spark Emission Spectrometer designed by GNR to celebrate 40 years of activity.

S6 SIRIUS represents the state of the art of Spark emission spectrometry offering easiness of use with no compromise on quality, performances and reliability.

S6 SIRIUS grants real multimatrix Spark emission spectrometer capability. Thanks to its innovative optical design can mount up to 14 High Resolution **CMOS** detectors each one of 4096 active elements offering a spectral resolution better than 10 ppm

S6 SIRIUS : analytical range from 119 to 850 nm, can analyze all the necessary elements present in the modern metal alloys.

Its innovative argon filled optic with smart recirculation system grants the maximum transparency to low UW radiation with a minimum argon consumption (< 10lt/day)

STANDARD **S6 SIRIUS** configuration

1. Optical System
2. Spectral Lines
3. Acquisition and control electronics
4. Source
5. Spark Stand
6. Software
7. Personal Computer
8. Power supply
9. Other specifications

1. Optical System

- High Resolution Multi Detector Optical System equipped with up to 14 **CMOS** solid state detectors depending on application.
- 4.096 active (pixels) for each CMOS detector
- High luminosity Holographic Grating
- Temperature stabilization
- Available Spectral Range 119 – 850 nm (depending on analytical configuration)
- Automatic Optical alignment
- Sealed Argon filled optical chamber with recirculation system
- Low argon consumption (10l/gg in standby mode)

2. Spectral Lines

- **S6 SIRIUS** with full spectrum availability enables the selection of the most sensitive and efficient emission spectral lines accordingly to the requested application. Addition of new elements in a second time it is always possible simply by Software selection and creating proper analytical curve (Reference standards required)

3. Control, Acquisition and Read Out

- Electronic system with integrators multi-channels and Data System Acquisition PC controlled by microprocessor.
- High speed 16 Bit ADC
- Mixed Signal ISP Flash MCU 100 MHz
- Serial Source Interface
- High speed readout with high speed interface USB for fast data processing and controlling the system

4. Spark Source

- Full automatic controlled source
- Solid state spark source semiconductor controlled.
- Plasma current from 1 to 100 A
- The discharge parameters are protected by password.
- Variable discharge parameters for individual analytical tasks
- The spark source is stabilized against variations of the power supply.
- Excitation parameters set and controlled according to excitation lines and analytical programs.
- Spark source with variable parameters.
- Spark Frequency: 1 up to 1000 Hz (controllable)
- Spark time 10-10000 us (controllable)

5. Spark Stand

- Spark stand for lodging samples up to 15Kg..
- Spark hole : 10 mm with possibility of ceramic reducers
- Easy removable spark stand for easy and fast cleaning operation .

6. Software (EOS)

for calculation of calibration curves for each elements in consideration of various matrixes (references) available for the calculation of analytical results.

Software allows for:

ANALYTICAL AND CALIBRATION SOFTWARE:

- Easy GUI (Graphic Interface User) system
- Function keys for routine operations
- Output unit selectable (intensities, intensities ratios, uncorrected concentrations, corrected concentrations etc)
- Selectable concentrations units (ppm, % with decimal number of digits customizable)
- Automatic profile.
- Global recalibration with automatic specific sub-programs standardization
- Mini calibration (through offsets)
- Correction of inter elemental interferences
- Standard deviation and relative standard deviation functions
- Repeat or reject one or more discharges
- Determination type of alloy (quality name) according to the requested norms (UNI, ISO, DIN, EN, ASTM, JIS, BS, etc.)
- Standards library
- International norms library
- Quality identification
- Calculation of Carbon equivalence or any other formulas consequent to the analysis
- Warning for out prefixed range elements

Statistic calculation:

- Printing of all discharges or only the average of up more than hundreds discharges, standard deviation and relative standard deviation
- Customization of printing for different templates and languages
- Software language at customer choice already pre-configured. (English, French, Italian, Spanish, Portuguese, Polish, Turkish, Russian, Chinese)
- Automatic saving of all data on storage with possibility of researching through various customizable keys
- Connection to external computers or central/server system

General properties:

- Software with 32bit application
- Fonts, font-sized setup up to setting on screen
- Date/time formats compatible with Windows setup
- Various icons for quick access to output functions or dialogues
- Drop lists for File, Filter, View
- Unlimited number of elements (depending on analytical program and configuration)
- Customizable and unlimited number of sample id fields
- Manual as PDF (Acrobat Reader)
- Fully automatic control and automatic diagnostic function (optic temperature, profile check correction,...)

Database:

- Import, Export
- Communication & Instrument interfacing
- File for sharing, transferring
- Exporting to files (standard); Opening in read view mode / Exporting to SQL DB (upon specific request)

Documentation:

- Standard print, customizable page set-up with logo or letter head functions (through HTML)
- Printer set-up, Print Preview
- Data printing, curves printing

Analysis management:

- Database management and controller
- Multi-windows for multi tasks working
- Unlimited number of views for analyses table
- Search function for all data fields in view
- Edit function for analyses
- Click'n'mark analyses selection
- Units & dimensions (unlimited number)
- Manual analysis input and sample identification
- Formula editor with extended possibilities
- Formula calculation
- Numeric statistics (no, average, abs./rel std dev, range)

7. Control Station: Personal Computer (Optional)

Thanks to the high-speed USB connection, it is possible to connect any kind of computer. Able to use laptop or desktop PC for operations.

GNR also recommends purchasing the PC and printer locally. The control system will install the software by our technicians or trained technicians from distributors.

As optional, a Personal Computer could be provided with the instrument.

Embedded internal PC (minimal features):

- Windows 10 / 11 Pro 64 bit
- Intel Core i5 (12th Gen.)
- 8 Gb RAM
- HDMI video output
- Hard Disk SSD 250 Gb
- Wireless Wi-Fi module (IEEE 802.11ac 2x2)
- LAN 10/100/1000 Mbps Ethernet
- 2 x USB 2.0

Optional : external workstation support intended as mobile arm to hold up monitor, keyboard and mouse

8. POWER SUPPLY

- 110/220V +/- 10%, single phase, 50/60 Hz
- 16 A, 1 KW

9. Other Parameters

- Working temperature range: +10°C - +35°C
- Humidity : 15 - 85%
- Inlet Argon Pressure: ~3,5 bar
- Argon Quality (min.): 5.5 (99.9995% Ar)
- Argon consumption :
- Analytical flow: ~4lt/analysis

