

## DW-CS-8820T Carbon & Sulfur Analyzer

### Applications

DW-CS-8820T High-Frequency Infrared Carbon & Sulfur Analyzer is used to measure mass fraction of carbon and sulfur in materials. Especially for the high carbon or high sulfur in cement, ore, coke, catalyst, magnetic materials, ceramics, inorganic matter, graphite, refractory materials, battery materials, plants and other materials. Key Applications: Mainly used in unknown samples, cement, ore, coke, catalyst, magnetic materials, ceramics, inorganic matter, graphite, refractory materials, battery materials, plants and other materials.

### Instrument technical parameters

Measurement Range: Carbon: 0.0001%-95.0000% (can be expanded to 99.9999%)

Sulfur: 0.0001%-95.0000% (can be expanded to 99.9999%)

Low carbon: 1ppm~0.2%, high carbon: 0.2%~99.99999% (low carbon and high carbon automatic adjustment)

Low sulfur: 1ppm~0.2%, high sulfur: 0.2%~99.99999% (low sulfur and high sulfur automatic adjustment)

Accuracy: Low carbon: 1ppm or RSD≤1%, high carbon: RSDs0.5%

Low sulfur: 1.5ppm or RSDs1.5%, high sulfur: RSD≤1.5%

Sensitivity: 0.1ppm

Analysis Time: Adjustable within 25-60s (Normally around 35s)

Analysis Error: Carbon meets 1S09556 standard, Sulfur meets ISO4935 standard,

Meet the JJG395-97 standard at the same time

Oscillating frequency: 20MHz

Combustion power: 2.5KVA-7.5KVA(auto-adjust).

Working environment: Room temperature 10°C~30°C Relative humidity 75%

Voltage: AC220V+5%, frequency 50HZ+2%



### Features

The core component of infrared detection pool adopts precious metal miniature infrared light source which is high-efficient and long service life. The modulation system adopts high-precision stepper motor control by the micro controller. It is realized that long-term stability of the modulation frequency and infrared pyroelectric solid light cone sensor Narrowband filters, these instruments make the host in high detect sensitivity, and it is effective way to detect carbon and sulfur content (ppm).it simplifies the hardware design, adding the whole host reliable and anti-interference ability.

- 1.The circuit design: the whole machine adopts modular design, highly integrated electronic circuits, it is very stable and reliable, meanwhile, it is adopted multi-level isolation so as to resolve high frequency interference thoroughly.
- 2.Sampling: it is adopted 32-bit sampling chip which belongs to America Analog Devices Company so it has fast speed and high precision.The Communication: it is adopted USB new data exchange technology,so it greatly improves the communication speed.
- The Power Supply: it is adopted high quality linear integrated military-grade power module, its output stable and there is no problem.
- 3.Light Source: special new type platinum infrared light source, it is efficient and its spectral stability.
- 4.The Analysis of pool: Gold-plated carbon and sulfur analysis pool and High-precision pyroelectric infrared detector.
- 5.The Motor: special aviatsion motor, its thermal stability well, it has a long service life.



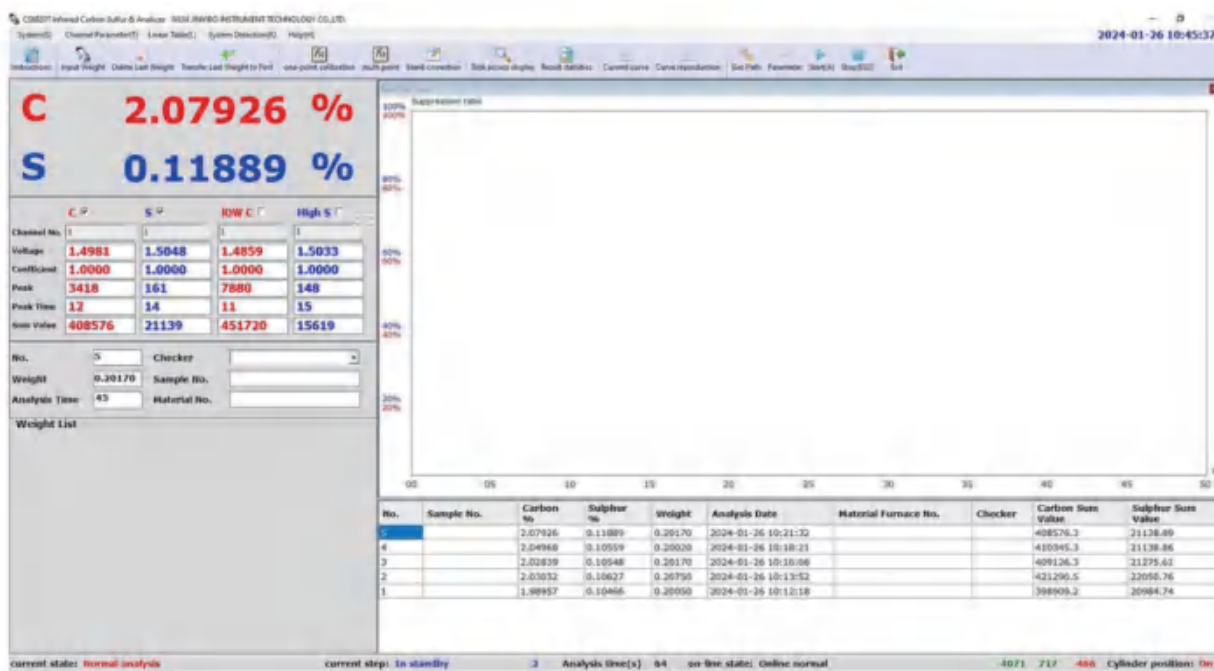
### ● High Frequency Burning System

- 1.High Frequency Circuit: it is adopted Self-excited directional couple take power feedback, it ensures that output power is consistent, and it makes samples fully burned. It is stable.
- 2.High-frequency High Power Circuit Design: it is adopted 7.5kvA high-frequency pipe (actually it uses power more than 2.5kvA, cannot add sample with empty burn), it is reduced the load on high-frequency combustion systems,and it improves service life.
- 3.Military Products: Ceramic high-power tube and ceramic vacuum capacitor (100A).
- 4.High-frequency furnace output is power and power adjustable, it is suitable for all kinds of sample combustion analysis, a wide range of test materials, the whole machine adopts Import solenoid valve, high-frequency Ceramic power tube etc.
- 5.It adopts automatic cleaning of the burner and clean it up.
- 6.The control by electronic flow, the analysis of gas flow volume, the analysis of result is more stable and reliable.
- 7.The dust clean in the tube so as to improve measurement stable and precision.
- 8.The internal oxygen purification has advantages of analysis low content.
- 9.The main circuit over current and timeout protection. When the loop current exceeds desired point or burning time more than 60s, the system cut the main circuit by itself, and this system can avoid high-power devices overheating damage, eliminating security risks. When the status of over current disappears, the main circuit automatically resume normal.
- 10.The system of high-frequency combustion and infrared detection system adopt fiber connection, cutting off direct electrical connection between the two, avoiding the burning furnace or external circuit can produce interference by cable transfers to infrared monitoring system and improves the data stable.

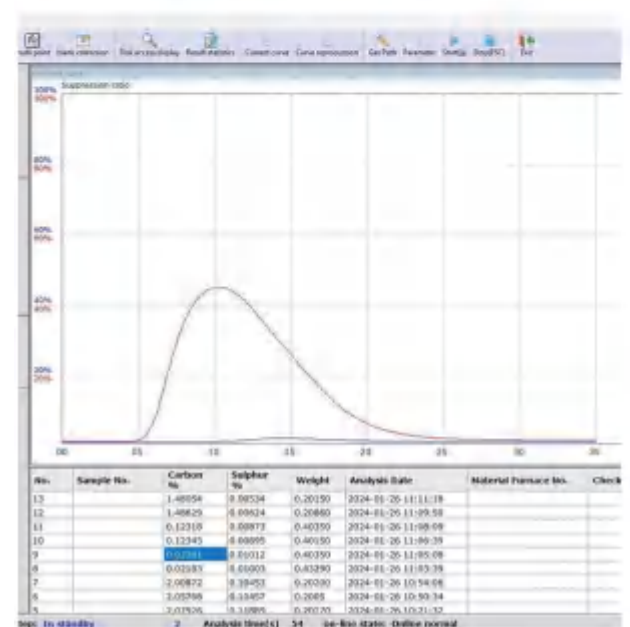
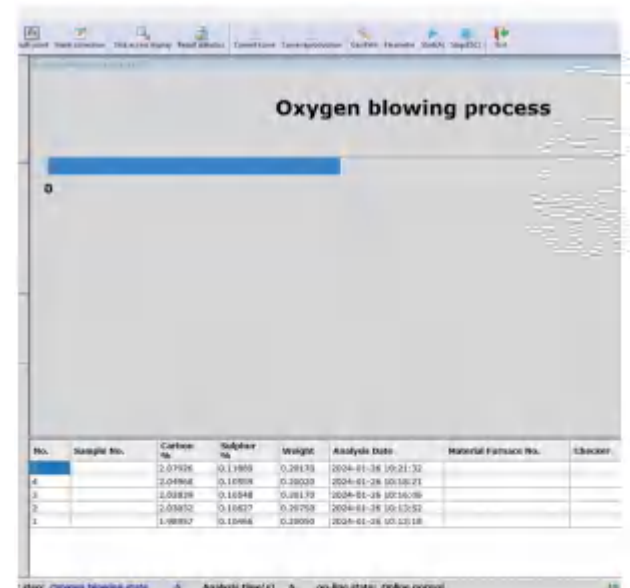


## ● The Random Software

- 1.It is adopted WINDOWS XP color surface in Chinese/English, its interface clear and its operation very convenient.
- 2.The independent infrared analysis software, complete functions. It has the functions of channel selection, data statistics, break point correction, results corrected, the system of detecting, system diagnostics and more than forty functions.
3. The analysis process of dynamic data integration, sampling every 32 seconds time, A/D change the frequency 150Hz-200Hz and it improves the analysis of sensitivity and accuracy
4. The signal is tracked and its adjusted by itself.
5. Linear table of linear data high, medium and low can be corrected.
6. The process of analysis displays all kinds of real-time data and carbon and sulfur release curve
7. There are 20 analysis channels to choose (each carbon and sulfur channels), and they can be arbitrary collocation, the choose range is very wide.
8. There are 100 carbon and sulfur release curves (each 50), it is can be stored at any time, and can be complete with carbon release curve and sulfur release curve.
9. Linearization calibration technology in full range, there are single and multi-point calibration, it can be set up one, two, three and more Linear calibration equation, and it improves Linear calibration equation and the correction of analysis data.
10. It can be communicated with data center or reported in front of the furnace
- 11.Any brand of computers can communicate with this system.
- 12.A variety of print output mode.
13. It can communicate with any brand of electronic balance.



Main Interface



## Main configuration

No.	Name	Type	Quantity	Unit	Remarks
1	Infrared host	DW-CS-8820T	1	PC	Include in quotation
3	Computer		1	PC	
4	Printer		1	PC	
5	Electronic balance	Sartorius	1	PC	
6	Standard Configuration	See the table below	1	Set	



### Standard Configuration

No.	Name	Specification	Unit	Quantity	Note
1	Relieve Valve	YQY-6	Pcs	1	
2	Ceramic Crucible	1000pcs/carton	Bax	1	
3	Tungsten Accelerator	Low blank of C&S	Bottle	1	
4	Pure Iron Accelerator	Low blank of C&S	Bottle	1	
5	Quartz Crucible Holder		Pcs	2	
6	Dust Cleaning Tube		Meter	1.2	
7	Silicone Ring	Ø40*27*7	Pcs	1	
8	O-Ring	37mm*3.1mm	Pcs	2	
9	O-Ring	16mm*2.5mm	Pcs	2	
10	PVC pipe	4mm*6mm,10m	Meter	1	
11	Button	Self-locking	Pcs	1	
12	Boat-shaped switch		Pcs	1	
13	Fuse	2A、20A	Pcs	Each 2	
14	Quartz Combustion Tube		Pcs	2	
15	Dust Cleaning Tube		Pcs	1	
16	Spoon for samples	Large,Medium,Small	Set	1	
17	Tweezer		Pcs	1	
18	Combustion Tube Brush		Pcs	1	
19	Ash Brush		Pcs	1	
20	Steel Wire Brush		Pcs	3	
21	Vacuum Silicone Grease		Bottle	1	
22	Desiccant	50g/bottle	Bottle	1	
23	Multi-Purpose Socket		Pcs	1	
24	Printing paper		Pc	1	
25	Copper Crucible Holder		Pc	1	
26	Ash scraper		Pc	1	
27	Ash bin		Pc	1	
28	Adapter		Pc	1	

### Installation conditions

Note: Installation conditions refer to the conditions that the user must prepare before the installer arrives.

1.Instrument analysis room: Away from the location of corrosive gases, dust, vibration and interference measurement such as acid and alkali

2.Analysis room area: Requires more than 3x3m

3.Working environment: indoor temperature: 10-30°C, relative humidity: <75%

4.Power supply: Requires good grounding, voltage AC 220V+5%, frequency 50Hz+2% and no harmonic interference.Wiring socket 16A (Three holes), One 10A (Three holes).

5. Power Supply: Power 5kW, voltage regulation accuracy<2% (If the voltage is unstable, it can be used as a backup)

Note: If the working power supply has harmonic interference such as intermediate frequency furnace,it should be equipped with AC parameter purification power supply.

6. The working gas: Oxygen, purity>99.5%.

7. Tool: Unpacking and general use tools.

## Training

### 1. On-site technical training

Party A is responsible for the training of Party B personnel in operation, maintenance, daily troubles, etc. and should be able to use the instruments independently and skillfully.

### 2. System training

Party B may also send personnel to Party A for systematic training. 2 trainers, for a period of not less than 3 days (the specific time of the training is decided by both parties), transportation, accommodation and self-care. Training content includes:

Carbon and sulfur analyzer analysis principle and method:

Structure and characteristics of DRAWELL series carbon and sulfur instruments:

Operational skills and analytical methods for quantitative analysis of carbon and sulfur analyzers Analysis condition setting, working curve, correction, etc.

Daily troubleshooting



## After sales service

1. After-sales service is directly responsible for the local dealers. If there is no dealer in this area, Chongqing Drawell Instrument Co., Ltd will be responsible for the repair.
2. The warranty period shall be 12 months from the date of acceptance of the goods or 12 months from the date of receipt of the goods by the buyer, whichever comes first. Lifelong service, and various spare parts are available for many years.
3. When the user encounters a problem, he can call the service hotline of 0086-023-63268643, and the after-sales service personnel will guide the solution within 24 hours by telephone.
4. When it is confirmed that the instrument is faulty and needs on-site maintenance, the service personnel will not give a solution within 2 working days, and the product will be excluded within 7 working days. In case of special circumstances, it is necessary to arrive at the on-site repair within the agreed time with the customer.
5. Content of on-site repair service: Repair instrument failure, instrumentation indicator, training function operation, to introduce the use experience and overhaul.
6. Provide service communication to users on a regular basis: Introduce the development of the company and the new technical functions of the instrument, introduce the test report and experience of users from all walks of life.
7. DW-CS-8820S software is operating software based on WINDOWS platform. When the operating software version needs to be updated, DRAWELL provides an upgraded version for free.

Note: Matters not covered in this agreement, the two sides negotiated through friendly negotiation.