



ELEMENTRAC CS-*i* Series Extended 4 Cell Configuration

Specification Sheet: 88200-1013

	Carbon	Sulfur
Instrument Range *1 88200-1013 (2C/2S) extended	0.0006 – 70 mg (0.6 ppm – 7% for a 1000 mg sample) (1 ppm – 14% for a 500 mg sample)	0.0006 – 64 mg (0.6 ppm – 6.4% for a 1000 mg sample) (1 ppm – 12.8% for a 500 mg sample)
Precision *2	0.0002 mg (0.2 ppm) or 0.4% RSD whichever is greater	0.0002 mg (0.2 ppm) or 0.4% RSD whichever is greater
Analysis time	40 seconds (nominal)	
Cycle time	80 seconds (nominal)	
Throughput	45 samples per hour (nominal)	
Typical sample size	50 -1000 mg	
Measuring method	Combustion via Induction furnace followed by Infrared detection for carbon dioxide (C) and sulfur dioxide (S)	
Chemical reagents	<ul style="list-style-type: none"> - Magnesium perchlorate - Sodium hydroxide - Platinized silica - Cellulose 	
Gas requirements	Oxygen 99.5% pure: 2 – 4 bar (30 – 60 psi), Compressed Air: 4 – 6 bar (60 – 90 psi)	
Gas consumption	Oxygen 180 l/h (during analysis)	
Furnace	Induction 2.2 kVA (power adjustable 0 – 100%)	
Operation conditions	15 – 35 °C; 20 – 80% rel. humidity (not condensing)	
Electrical power requirements	230 VAC ±10%, 50/60 Hz; 16 A fuse	
Weight	Approx. 150 kg	
Dimensions (W x H x D)	520 x 840 x 750 mm	
Required Accessories	<ul style="list-style-type: none"> - PC - TFT - Balance 	
Options	<ul style="list-style-type: none"> - Carrier gas purification furnace - Autoloader 	

*1 Other configurations / working ranges see next page or ask Eltra.

*2 One sigma deviation; tested by gas dose and blank analysis; Nominal weight 1000 mg.

Theory of operation

The ELMENTRAC CS-*i* measures the carbon and sulfur content in mostly inorganic samples like steel, iron, cast iron, pure metals, alloys, cement and some organic samples like soil. The sample is combusted together with typical accelerators like tungsten, copper or additional iron in an oxygen stream. Here the induction furnace provides temperatures significantly above 2000 °C. The released combustion gases carbon dioxide and sulfur dioxide are a reaction product of the carbon and sulfur content in the sample and are measured in element selective infrared cells.

Available configurations

Due to a wide variety of samples ELTRA provides different configurations to fit the user's requirements. On the one hand powerful configurations with 4 IR cells are available to cover a wide working range (like 88200-1008), on the other hand economic priced single element analyzers with one IR cell (like 88200-2001) are available when a reduced working range (e.g. C in cast iron) is required.

The ELTRA CS-*i* series can be equipped with customized IR cells to extend the working range and for special applications with IR cells containing a massive gold IR path. This leads to higher resistance versus halogens.

Examples of configurations and working range:

(further working ranges on request)

ELTRA Part Number	Cell Configuration	Working Range, based on a 500 mg sample	
		Carbon	Sulfur
88200-1001	(1C)	0.1 – 7%	–
88200-1002	(2C)	0.0001 – 7%	–
88200-1003	(1S)	–	0.015 – 0.9%
88200-1004	(2S)	–	0.0001 – 4.5%
88200-1005	(1C, 1S)	0.1 – 7%	0.0001 – 0.3%
88200-1006	(2C, 1S)	0.0001 – 7%	0.0001 – 0.3%
88200-1007	(1C, 2S)	0.1 – 7%	0.0001 – 4.5%
88200-1008	(2C, 2S)	0.0001 – 7%	0.0001 – 4.5%
88200-1013	(2C, 2S) extended	0.0001 – 14%	0.0001 – 12.8%

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