

□ CHARACTERISTICS

The LECO® SC-32 and SC-132 Systems are microprocessor based instruments for determining the sulfur content in coal, coke, petroleum products, and many other non-metallic materials. Each system consists of a Control Console and a Measurement Unit with a built-in balance.

Samples are combusted in an oxygen atmosphere where the sulfur oxidizes to SO₂. Moisture and dust are removed and the SO₂ gas is then measured by a solid state infrared detector. The microprocessor formulates the analysis results, which are displayed and printed on the Control Console, by combining the outputs of the infrared detector and system ambient sensors with pre-programmed calibration, linearization and weight compensation factors.

SC-32/SC-132 SYSTEMS

Detection Method	Infrared Absorption	
	<u>SC-32</u>	<u>SC-132</u>
*Range (direct reading)	.005 to 99.99 percent sulfur	0.001 to 99.99 percent sulfur
	The product of sample weight (grams) and % sulfur should not exceed 4%.	The product of sample weight (grams) and % sulfur should not exceed 2%.
	Example: 4% S at 1 gram 8% S at .5 grams 16% S at .25 grams	Example: 2% S at 1 gram 4% S at .5 grams 8% S at .25 grams
Nominal Sample Weight:	Coal 0.35 grams, Coke 0.25 grams	
Accuracy:	± 1 percent of the sulfur content (for most samples)	
Sensitivity:	0.001 percent	
Analysis Time:	120 seconds nominal (timer and comparator controlled)	
Weight Compensator Range:	0.0100 to 5.0000 grams	
External Balance or Manual Weight:		
Resolution	.0001 gram	
Range	0.0000 to 5.0000 grams	
Integral Balance:		
Resolution	0.001 grams	
Range	0.000 to 5.000 grams (Tare range to 50 grams)	
Sample Weight Stack (memory) Capacity:	50 weights	
Temperature Ranges:		
Operating	15° to 40°C (59° to 104°F)	
Storage	0° to 50°C (32° to 122°F)	

*The values given reflect the measuring capability of the systems. Variations in blank, inconsistency in burns, and operator technique will determine the lower limit of the useful range of the overall system in a given installation.

Integral Alphanumeric Printer:

Printing Technique
Characters per line
Print Speed
Transfer Medium
Paper Roll

Impact Dot Matrix
34 maximum
2 lines per second
Red/Blue Ink Ribbon
3.75 inches x 190 feet
(9.5 centimeters x 58 meters)

Physical:

Height
Width
Depth
Weight

17.1 cm (6 3/4 inches)
30.5 cm (12 inches)
44.5 cm (17 1/4 inches)
5.9 Kg (13 lbs.)

DATA TRANSMIT (OPTIONAL - See Service section for details)

OUTPUTS (all ASCII)

RS-422
RS-232
20 mA Current Loop
Opto Isolated
RS-422 Special

Electrical Power Requirements:

230 VAC nominal, (253 VAC maximum, 207 VAC
minimum)
50/60 Hz
3.5 kV Amps

Internal Power Supplies:

Logic
Solenoids
Signal
Printer
IR Source
Chopper Motor

+ 5 VDC $\pm 1\%$, 1 to 10 amps
+ 24 VDC $\pm 1\%$, 0.3 to 2.0 amps
 ± 15 VDC $\pm 0.5\%$, 0 to 0.5 amp
+ 30 VDC $\pm 1\%$, 0 to 1 amp
+ 5.5 VDC $\pm 0.5\%$, 0.2 to 2 amps
24 VAC $\pm 3\%$, 0 to 0.5 amp

MEASUREMENT UNIT

Resistance Furnace:	Single Closed-End Combustion Tube
Temperature Range	399° to 1538°C (750° to 2800°F)
Setpoint Accuracy	within $\pm 1\%$ of set point
Heat-up Time (room temperature to 1350°C)	30 minutes
Carrier Gas:	Oxygen
Purity Required	>99.5%
Input Pressure	30 P.S.I. (2.1 kg/cm ²) nominal
System Pressure	10 P.S.I. (0.7 kg/cm ²) adjustable
Gas Flows (only during analysis):	
Purge	≈ 4.0 liters/minute
Lance	≈ 1.0 liters/minute
Collection	≈ 3.25 liters/minute
Total Consumption (Purge + Lance Flows)	≈ 5.0 liters/minute
Chemical Reagent:	Anhydrous Magnesium Perchlorate (MgClO ₄)
Physical:	
Height	66 cm (26 inches)
Width	71.1 cm (28 inches)
Depth	61 cm (24 inches)
Weight	127 Kg (279 lbs.)

CONTROL CONSOLE

Keyboard:	31 membrane touch keys
Displays and Indicators:	
Alphanumeric (Message Center)	40 character LED
Digital	6 digit LED, 0.7 inches high
	1 digit LED, 0.27 inches high
Status Indicators	8 LED Lamps
Audible Indicator	Electric Beeper