

TruSpec[®] Micro Elemental Determinators and Micro Oxygen Add-On Module

Specification Sheet



Instrument Range (@ 2 mg)*	Carbon: 0.002 to 100% Sulfur: 0.04 to 65%	Hydrogen: 0.02 to 50% Oxygen: 0.04 to 100%	Nitrogen: 0.02 to 50%
Precision Range (@ 2 mg)	Carbon: <1% RSD or ± 0.001 (whichever is greater) Hydrogen: <1% RSD or ± 0.01 (whichever is greater) Nitrogen: <1% RSD or ± 0.01 (whichever is greater) Sulfur: <1% RSD or ± 0.02 (whichever is greater) Oxygen: <1% RSD or ± 0.02 (whichever is greater)		
Analysis Time	C/H/N: ~4 minutes	C/H/N/S: ~4 minutes	Oxygen: ~1 minute
Nominal Sample Weight	2 mg		
Detection Method	Carbon/Hydrogen/Sulfur/Oxygen: Optimized, low-noise, non-dispersive Infrared (IR) absorption Nitrogen: Optimized, low-drift, Thermal Conductivity (TC) cell		
Gas Requirements	Carrier: Helium (99.99% pure) @ 35 psi (2.4 bar) $\pm 10\%$ Combustion: Oxygen (99.99% pure) @ 35 psi (2.4 bar) $\pm 10\%$ Pneumatic: Compressed air (source must be oil and water free); 40 psi (2.8 bar) $\pm 10\%$		
Furnace	Resistance furnace; both primary and afterburner; up to 1100°C		
Autoloader	30-position (stackable to 120 samples)		
Instrument Requirements	TruSpec Micro CHN or CHNS		
Operational Control	Windows [®] -based software on external PC		
Environmental Conditions	Operating Temp: 15°C to 30°C (59°F to 86°F) Humidity: 20% to 80%, non-condensing		
Electrical Requirements	Determinator: 230 V~ ($\pm 10\%$; at max load), 50/60 Hz, single phase, 12 A; 9,500 BTU/hr** Oxygen Add-On: 230 V~ ($\pm 10\%$; at max load), 50/60 Hz, single phase, 18A; 14,200 BTU/hr**		
Physical Dimensions[†]	Determinator: 31 in. H x 27 in. W x 28 in. D (79 x 69 x 71 cm) Oxygen Add-On: 15 in. H x 12 in. W x 22 in. D (38 x 30 x 56 cm)		
Weight (approx.)	235 lb. (107 kg)	Shipping Weight (approx.): 285 lb. (129 kg)	
Part Numbers			
TRSMCHNC	TruSpec Micro CHN		
TRSMCHNSC	TruSpec Micro CHNS		
628OTRSM	628 Micro Oxygen Add-On Module; Compatible with TruSpec Micro CHN/CHNS Models		
628OTRS	628 Micro Oxygen Add-On Module; Compatible with Standard TruSpec CHN Models		
Optional Accessories			
751-600-120	Six-Place Electronic Micro-Balance Kit		
603-340	Microsample Liquid Kit		

*Adjusting sample size may extend instrument range.

**Average output based on nominal operating parameters.

†Allow a 6-inch (15 cm) minimum access area around all units.

V~ denotes VAC.

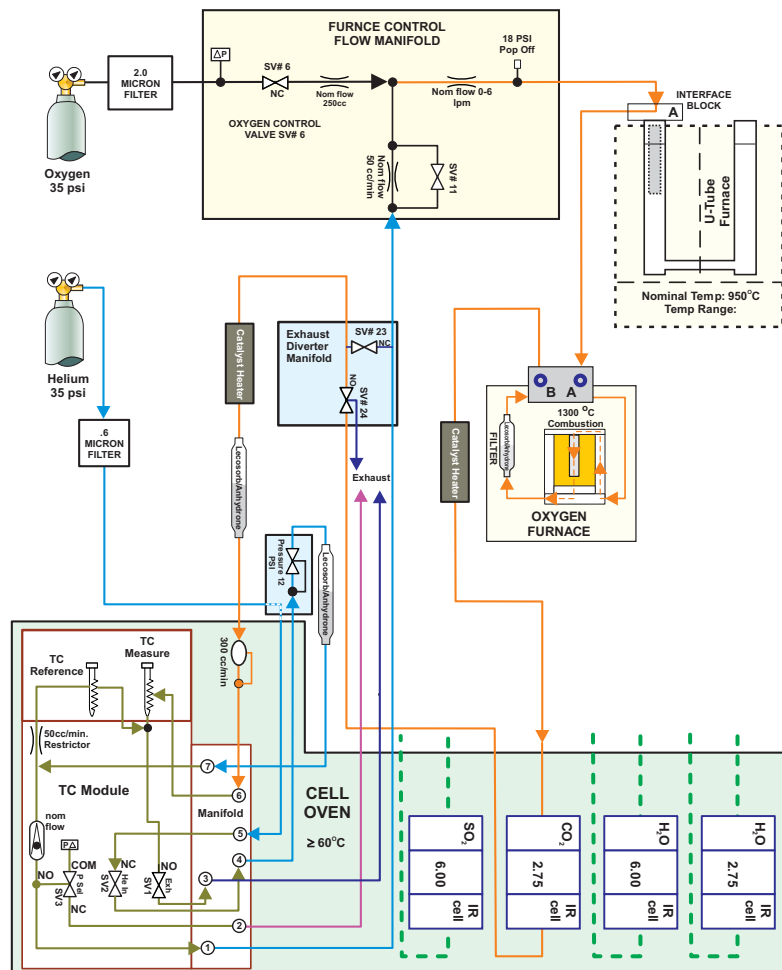
Theory of Operation

The efficiency and speed of the TruSpec Micro CHN and CHNS is a result of the unique combination of a flow-through carrier gas system used in conjunction with individual highly selective, infrared (IR) and thermal conductivity detection systems.

A weighed micro sample is placed into the autoloader of the TruSpec Micro and is automatically dropped into the high-temperature combustion furnace, allowing the sample to combust. This combustion converts carbon to CO₂, hydrogen to H₂O, Nitrogen to N₂, and sulfur to SO₂. The combustion gases are swept from the furnace, through scrubbing reagents, and onto the detection systems as they are being released. Independent IR detectors are used for simultaneous detection of carbon, hydrogen, and sulfur. Nitrogen is measured using a thermal conductivity detection system. The entire analysis cycle is complete in approximately 4 minutes.

The optional micro oxygen add-on module enables the TruSpec Micro to determine oxygen content in organic matrices and is compatible with both the TruSpec Micro CHN and CHNS models. Samples being analyzed for oxygen are placed into the autoloader of the micro oxygen add-on module and automatically dropped into a high-temperature pyrolysis furnace. The oxygen released during pyrolysis of the sample reacts with a carbon-rich environment in the furnace to form CO. The CO is swept from the furnace and converted to CO₂ before measurement via infrared detector (approximately 1 minute analysis time).

Flow Diagram



Specifications and part numbers may change.
Consult LECO for latest information.

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