

# Model 450*i* hydrogen sulfide and sulfur dioxide analyzer

## Pulsed fluorescence gas analyzer

The Thermo Scientific™ Model 450*i* Hydrogen Sulfide and Sulfur Dioxide Analyzer utilizes pulsed fluorescence technology.

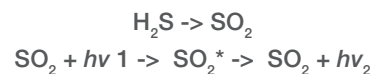
### Features

- Pulsed excitation and intensity stabilization
- Reflective bandpass filters
- Temperature stabilization reaction chamber
- Stable, long-life UV source
- Superior zero stability

### Introduction

The Thermo Scientific™ Model 450*i* analyzer operates on the principle that H<sub>2</sub>S can be converted to SO<sub>2</sub>. As the SO<sub>2</sub> molecules absorb ultraviolet (UV) light and become excited at one wavelength, the molecules then decay to a lower energy state emitting UV light at a different wavelength.

Specifically:



The pulsing of the UV source lamp serves to increase the optical intensity whereby a greater UV energy throughput and lower detectable SO<sub>2</sub> concentration are realized. Reflective bandpass filters, as compared



to commonly used transmission filters, are less subject to photochemical degradation and are more selective in wavelength isolation. This results in both increased detection specificity and long term stability.

This state-of-the-art gas analyzer also offers features such as an ethernet port as well as flash memory for increased data storage.

Ethernet connectivity provides efficient remote access, allowing the user to download measurement information directly from the instrument without having to be onsite.

You can easily program shortcut keys to allow you to jump directly to frequently accessed functions, menus or screens. The larger interface screen can display up to five lines of measurement information while primary screen remains visible.



Thermo Scientific™ Model 450*i*  
Hydrogen Sulfide and Sulfur Dioxide Analyzer



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## Thermo Scientific Model 450i Hydrogen Sulfide and Sulfur Dioxide

| Specifications         |   |
|------------------------|---|
| Preset ranges          | 0-0.05, 0.1, 0.2, 0.5, 1, 2, 5, and 10 ppm, 0-0.2, 0.5, 1, 2, 5, 10, 20, and 25 mg/m <sup>3</sup>   |
| Extended ranges        | 0-0.5, 1, 2, 5, 10, 20, 50 and 100 ppm, 0-2, 5, 10, 20, 50, 100, 200, and 250 mg/m <sup>3</sup>   |
| Custom ranges          | 0-0.05 to 100 ppm, 0-0.2 to 250 mg/m <sup>3</sup>   |
| Zero noise             | 1.0 ppb (Manual SO <sub>2</sub> or Combine Sulfur) 3.0 ppb (Automatic mode SO <sub>2</sub> or H <sub>2</sub> S) (10 second averaging time)          |
|                        | 0.5 ppb 1.5 ppb (60 second averaging time)  |
|                        | 0.25 ppb 0.75 ppb (300 second averaging time)   |
| Lower detectable limit | 2.0 ppb (Manual SO <sub>2</sub> or Combine Sulfur) 6.0 ppb (Automatic mode SO <sub>2</sub> or H <sub>2</sub> S) (10 second averaging time)          |
|                        | 1.0 ppb 2.0 ppb (60 second averaging time)  |
|                        | 0.5 ppb 1.5 ppb (300 second averaging time)   |
| Zero drift (24 hour)   | Less than 1 ppb   |
| Span drift (24 hour)   | +/-1% Full Scale  |
| Response time          | 80 seconds (10 second average time)   |
|                        | 110 seconds (60 second average time)  |
|                        | 320 seconds (300 second average time)   |
| Precision              | 1% of reading or 1 ppb (whichever is greater)   |
| Linearity              | +/-1% full scale < 100 ppm  |
| Sample flow rate       | 1.0 liter/min.  |
| Converter efficiency   | > 80% H <sub>2</sub> S to SO <sub>2</sub> . (Note: Various other sulfur compounds can be converted at varying %)                                    |
| Operating temperature  | 20°C to 30°C  |
| Power requirements     | 100 VAC, 115 VAC, 220-240 VAC +/-10% @ 300W   |
| Size and weight        | 16.75" (W) x 8.62" (H) x 23" (D), 48 lbs  |
|                        | 425 mm (W) x 219 mm (H) x 584 mm (D), 21.8 kg   |
| Outputs                | Selectable voltage, RS232/RS485, TCP/IP, 10 status relays, and power fail indication (standard). 0-20 or 4-20 mA isolated current output (optional) |
| Inputs                 | 16 Digital Inputs (standard), 8 0-10 Vdc analog Inputs (optional)   |
| Available options      | Teflon particulate filter, rack mounts, rear extenders  |

To maintain optimal product performance, you need immediate access to experts worldwide, as well as priority status when your air quality equipment needs repair or replacement. We offer comprehensive, flexible support solutions for all phases of the product life cycle. Through predictable, fixed-cost pricing, our services help protect the return on investment and total cost of ownership of your Thermo Scientific products.

### USA

27 Forge Parkway  
Franklin, MA 02038  
Ph: (508) 520-0430  
Fax: (508) 520-2800  
orders.aqi@thermofisher.com

### India

C/327, TTC Industrial Area  
MIDC Pawane  
New Mumbai 400 705, India  
Ph: +91 22 4157 8800  
india@thermofisher.com

### China

+Units 702-715, 7th Floor  
Tower West, Yonghe  
Beijing, China 100007  
Ph: +86 10 84193588  
info.eid.china@thermofisher.com

### Europe

Ion Path, Road Three,  
Winsford, Cheshire CW73GA  
UK Ph: +44 1606 548700  
Fax: +44 1606 548711  
sales.epm.uk@thermofisher.com

## Ordering information

### Model 450i H<sub>2</sub>S/SO<sub>2</sub> Analyzer

Choose from the following configurations/options to customize your own Model 450i analyzer

#### 1. Voltage options

A = 115 Vac 50/60 Hz

B = 220 Vac 50/60 Hz

J = 100 Vac 50/60 Hz

#### 2. Internal zero/span

N = No zero/span assembly (standard)

Z = Internal zero span assembly

P = Internal permeation span source with zero/span assembly

#### 3. Sample Handling:

S = Standard

E = External Converter Setup

(no converter supplied)

H = Selective SO<sub>2</sub> scrubber

(Continuous H<sub>2</sub>S analysis only)

#### 4. Optional I/O

A = None (standard)

C = I/O expansion board (4-20mA outputs – 6 channels, 0-10v inputs – 8 channels)

#### 5. Mounting hardware

A = Bench mounting and ears/handles, EIA

### Your Order Code: Model 450i -

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