

# Thermo Scientific Model 5028i

## Continuous particulate monitor

The Thermo Scientific™ Model 5028i Continuous Particulate Monitor uses beta attenuation technology in combination with the established iSeries platform design.

### Features

- U.S. EPA Approved PM-10 (EQPM1102-150) and PM-2.5 (EQPM0609-183) equivalent monitor
- Continuous, non-stepwise measurement of PM-10 and PM-2.5 simultaneously
- Internal backup power to shorten stabilization time after power off
- Increased tape volume for longer unattended operation
- Designed for easy maintenance



**Thermo Scientific™ Model 5028i**  
continuous particulate monitor

### Introduction

Unlike some other continuous particulate monitors, the Model 5028i instrument has two separate sample channels which can configure different size-selective inlets to draw a known volume of air and deposit PM-10 and PM-2.5 respectively on two different auto-advancing filter tapes. Two separate detection systems in the instrument then measure PM-10 and PM-2.5 simultaneously. The combined measurement of mass and air volume are used to obtain the mass concentration readings. Supplied with user-selectable data logging options, concentrations can be reported in actual or standard conditions.

The Model 5028i monitor auto-advances the particulate-laden sample filter in accordance with user-defined parameters such as mass accumulation limits, timed intervals or the continuous flow rate relative to pressure changes.

The filter tape will advance in a continuous pattern, as compared to stepwise measurement, resulting in the mitigation of particle losses. In addition, the increased filter tape volume will decrease replace frequency and support a longer period of unattended operation.

To accurately address potential water bias and volatile loss, the Dynamic Heating System allows the user to hold the sample temperature at a fixed value or below a relative humidity threshold.

## Thermo Scientific Model 5028i continuous particulate monitor

Specifications	
Source	Carbon-14, < 3.7 MBq (<100 µCi)
Measurement range	0 to 0.1 mg/m <sup>3</sup> , 1.0, 2.0, 3.0, 5.0, 10.0 mg/m <sup>3</sup> ; 0 to 100, 1,000, 2,000, 3,000, 5,000, 10,000 µg/m <sup>3</sup>
Minimum detection limit	< 4 µg/m <sup>3</sup> (1 hour) @ 2σ; < 1 µg/m <sup>3</sup> (24-hour) @ 2σ
Resolution	0.1 µg/m <sup>3</sup>
Precision	± 3.0 µg/m <sup>3</sup> < 80 µg/m <sup>3</sup> ; 4-5 µg/m <sup>3</sup> > 80 µg/m <sup>3</sup> (24-hour)
RMS precision	PM2.5 < 5%, PM10 < 5% (24-hour)
Accuracy (mass measurement)	± 5% using NIST-traceable mass foil set
Air flow rate	1 m <sup>3</sup> /h (16.67L/min) measured across an internal subsonic orifice
Sample flow precision	± 2% of measured value
Sample flow accuracy	<5% of measured value
Mass concentration	60 to 3,600 seconds and 24-hour
Data output rate	Every 1 second
Operating temperature	The temperature of the sampled air may vary between -30 and 45°C. The 5028i units must be weather protected within the range of 4°C to 50°C An optional Complete Outdoor Enclosure provides complete weather protection
Non-condensing	< 95% RH inside 5028i monitor
Output	Selectable Voltage, RS232/RS485, TCP/IP, 10 status relays and power fail indication (standard). 0-20 or 4-20 mA isolated current output (optional)
Input	16 Digital inputs (standard), Eight 0 to 10 VDC analog inputs (optional), 8 User-defined analog outputs (0 -1 or 0 -5 VDC)
Power requirements	110VAC-120VAC, 220-240VAC, 50/60 Hz 700 Watts (110V); 700 Watts (220V) maximum
Pump	220 VAC 50/60 Hz, 2.0 A
Physical dimensions	18.96" (48.2 cm) W × 22.23" (56.5 cm) D × 23.43" (59.5 cm) H
Weight	110VAC: 77 lbs (35 kg), 220VAC: 66 lbs (30kg)
Protocols	C-Link, MODBUS, Gesytec (Bayern-Hessen), ESM Protocol, streaming data, and NTP (Network Time Protocol) protocols. Simultaneous connections from different locations over Ethernet
Safety and electrical designations	Designed to meet CE: EN 61326:1997 + A1:1998 + A2:2001 + A3:2003, EN:61010-1; UL: 61010-1:2004; CSA: C22.2 No. 61010-1:2004; FCC: Part 15 Subpart B, Class B
Approvals and certifications	U.S. EPA PM-10 Equivalent Monitor: EQPM1102-150; U.S. EPA PM-2.5 Equivalent Monitor: EQPM0609-183

## Ordering information

### Model 5028i

Choose from the following configurations/options to customize your own Model 5028i

#### 1. Voltage options

A = 110 VAC 50/60 Hz (standard)

B = 220 VAC 50/60 Hz

D = 220 VAC 50/60 Hz (China)

#### 2. Tube options

H = Extended tube assembly  
(6 ft and 4 ft) w/2 fittings

N = No extended tube assembly

T = Tripod (6 ft and 4 ft)

B = Tripod & extended tube assembly  
(6 ft and 4 ft) w/2 fittings

C = Extended tube assembly  
(10 ft and 8 ft) w/2 fittings

D = Tripod & extended tube assembly  
(10 ft and 8 ft) w/2 fittings

#### 3. Inlet A options

E = PM-10 US EPA

V = VSCC inlet combo (PM-10 USEPA,  
1st stage w/PM-2.5 VSCC)

P = TE inlet combo PM-10 US EPA  
1st stage w/TE 2.5C US EPA

X\* = Thermo Fisher inlet combo PM-10 US EPA  
1st stage w/PM-2.5 TF

N = No inlet

#### 4. Inlet B options

E = PM-10 US EPA

V = VSCC inlet combo (PM-10 USEPA,  
1st stage w/PM-2.5 VSCC)

P = TE inlet combo PM-10 US EPA  
1st stage w/TE 2.5C US EPA

X\* = Thermo Fisher inlet combo PM-10 US EPA  
1st stage w/PM-2.5 TF

N = No inlet

#### 5. Optional I/O

A = None (standard)

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

\*X is not US EPA approved and hence recommended for research use only.

## Your order code: Model 5028i

 Learn more at [thermofisher.com/5028i](https://thermofisher.com/5028i)

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