

Air quality monitoring

## 5030iQ SHARP (synchronized hybrid ambient real-time particulate) Monitor

Real-time particulate monitor that utilizes beta attenuation and light scattering

The Thermo Scientific™ 5030iQ SHARP (synchronized hybrid ambient real-time particulate) Monitor combines the speed of light scattering nephelometry with the accuracy of beta attenuation technology for continuous PM-10 and PM-2.5 measurement.

### Introduction

Developed on the renowned Thermo Scientific iQ Series platform design, this instrument offers unprecedented ease of use.

The 5030iQ SHARP Monitor delivers real-time, accurate, and precise results. The highly sensitive nephelometry is checked against the mass concentration of the beta attenuation data for calibration. With extreme precision, the superior high-time resolution outputs mass concentrations of real-time data in one-minute intervals.

The 5030iQ Monitor provides long-term unattended operation by utilizing continuous, non-stepwise measurement to auto-advance the particulate-laden sample, avoiding potential particle loss.

The instrument monitors the sample conditions and adjusts the control system to heat only when necessary, eliminates moisture effects, and ensures that volatile aerosols remain intact for accurate measurement.



5030iQ SHARP

In addition, the Optics Assembly can be easily removed in the field for servicing, which allows the base unit to continue running as a FEM-compliant monitor without interruption. The design of the 5030iQ Monitor is rack-mountable and requires little maintenance.

### This state-of-the-art monitor features:

- U.S. EPA approved PM-10 (EQPM-0423-260) and PM-2.5 (EQPM-0609-184) equivalent monitor
- High time resolution, one-minute measurements
- Superior accuracy, precision and sensitivity
- Enhanced user interface and ePort communication software
- Enhanced ethernet connectivity
- Remote data access

## 5030iQ SHARP (synchronized hybrid ambient real-time particulate) Monitor

Specifications	
Source	Beta: Carbon-14 (C-14), < 3.7 MBq (<100 µCi) Optical: IR LED, 6 mW, 880 nm
Measurement range	0 to 10,000 µg/m <sup>3</sup>
Lower detectable limit	6 µg/m <sup>3</sup> (1/2 hour), 4 µg/m <sup>3</sup> (24-hour) 3 µg/m <sup>3</sup> (3-hour), 1 µg/m <sup>3</sup> (24-hour)
Resolution	0.1 µg/m <sup>3</sup> , updated every 1 second
Precision	±2.0 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 average)
Span drift	0.02% per day
Accuracy (for mass measurement)	±5% using SI-traceable mass foil set
Air flow rate	1 m <sup>3</sup> /h (16.67 L/min) measured across an internal subsonic orifice, user selectable 14 to 20 lpm
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 sampled air may vary -30 to 50 °C. 5030iQ SHARP Monitor must be weather protected within range 4 to 40 °C, an optional complete outdoor enclosure provides complete weather protection
Analog I/O (optional)	4 isolated voltage inputs 0–10 V 6 isolated analog voltages outputs, with 4 selectable ranges 6 isolated analog current outputs, with 2 selectable ranges
Digital I/O (optional)	16 digital inputs (TTL) 8 solenoid driver outputs 10 digital reed relay contact outputs
Serial ports (optional)	1 RS-232/485 port 1 RS-485 external accessory port
Standard ports	3 full-speed USB ports (one in front, two in rear) 1 gigabit ethernet port
Power requirements	100–240 VAC, 50–60 Hz recommended, 500 watts (115 V) 500 watts maximum (220–240 V (instrument, heater & pump))
Physical dimensions	W: 42.5 cm (16.73") x D: 53.8 cm (21.16") x H: 42.7 cm (16.83")
Weight	< 55.1 lbs (< 25 kg)
Protocols	MODBUS, TCP/IP, Gesytec (Bayern-Hessen), streaming data and NTP (Network Time Protocol) protocols. Simultaneous connections from different locations over Ethernet.
Safety and electrical designations	Designed to meet CE: EN61326: 1997 + A1: 1998 + A2: 2001 + A3: 2003, EN61010-1 UL: 61010-1: 2004; CSA: C22.2 No. 61010-1: 2004; FCC: Part 15 Subpart B, Class B, UKCA
Approvals and certifications	U.S. EPA PM-10 equivalent monitor (EQPM-0423-260) U.S. EPA PM-2.5 equivalent monitor (EQPM-0609-184)

Maintain your investment and get the most out of your Thermo Scientific products. Our comprehensive, flexible support solutions provide immediate access to experts worldwide and priority status when your air quality equipment needs repair or replacement.

### Your order code: 5030iQ SHARP Monitor



Learn more at [thermofisher.com/5030iq](https://thermofisher.com/5030iq)

## Ordering information

5030iQ SHARP Monitor
Choose the following configurations options to customize your 5030iQ Monitor
<b>Electrical standards</b>
A = USA, 100–120 VAC 50/60 Hz input
B = Europe, 200–240 VAC 50/60 Hz input
C = Japan, 100 VAC 50/60 Hz input
D = China, 200–240 VAC 50/60 Hz input
<b>Tube options</b>
H = Extended tube assy (6 FT) w/ SS tube union and Teflon™ ferrules
T = Tripod
B = Tripod & extended tube assy (6 FT) w/ SS tube union and Teflon ferrule
N = No extended tube assy
<b>Inlet options</b>
C = TSP w/ bug screen
E = PM-10 US EPA
T = PM-10 traditional
S = SCC Inlet combo PM-10 US EPA 1st stage w/ PM-2.5 SCC
U = SCC Inlet combo PM-10 traditional 1st stage w/ PM-2.5 SCC
V = VSCC Inlet combo PM-10 US EPA 1st stage w/ PM-2.5 VSCC
W = VSCC Inlet combo PM-10 Traditional 1st stage w/ PM-2.5 VSCC
X = Thermo Scientific VSCC Inlet Combo PM-10 US EPA 1st stage w/ PM-2.5 TF cyclone separator
Y = Thermo Scientific VSCC Inlet Combo PM-10 Trad 1st stage w/ PM-2.5 TF cyclone separator
1 = SCC inlet combo PM-10 US EPA 1st stage w/ PM-1 SCC
2 = SCC inlet combo PM-10 traditional 1st stage w/ PM-1 SCC
3 = PM-10 inlet (EU-Style DPM-10/01/00), 1 m <sup>3</sup> /h
4 = PM-2.5 inlet (EU-Style DPM-25/01/00), 1 m <sup>3</sup> /h
N = No inlet
<b>Optional I/O</b>
A = Communications & analog & digital
B = Communications & analog
C = Communications & digital
D = Analog & digital
E = Communications
F = Analog
G = Digital
N = No I/O interface