5030i SHARP synchronized hybrid ambient real-time particulate monitor

The Thermo Scientific™ Model 5030i 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.

Features

- U.S. EPA PM-2.5 equivalent monitor (EQPM-0609-184)
- High time resolution, one-minute measurements
- Digital dynamic filtering
- Superior accuracy, precision and sensitivity
- Continuous, non-stepwise measurement provides long-term unattended operation
- Volatile loss mitigation via dynamic heating system
- Enhanced user interface and iPort communication software

Thermo Scientific™ Model 5030i SHARP Synchronized Hybrid Ambient Real-Time Particulate Monitor

Introduction

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

Featuring proprietary dynamic digital filtering for continuous mass calibration, the Model 5030i 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 Model 5030i SHARP monitor provides long-term unattended operation by utilizing continuous, non-stepwise measurement to auto-advance the particulate-laden sample, avoiding potential particle loss.

To accurately address potential moisture 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. The result is a system that heats only when necessary, eliminates moisture effects, and ensures that volatile aerosols remain intact for accurate measurement.

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 Model 5030i SHARP monitor is rack-mountable and requires limited maintenance.

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

- Flash memory for increased data storage
- Enhanced Ethernet connectivity
- Remote data access
- iPort communication software
- Modular design for future upgrades

Thermo Scientific Model 5030i 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 1.0, 2.0, 3.0, 5.0, 10.0 mg/m^3; 0-100, 1,000, 2,000, 3,000, 5,000, 10,000 µg/m^3
Lower detectable limit	6 µg/m^3 (1/2 hour), 4 µg/m^3 (24-hour); 3 µg/m^3 (3-hour), 1 µg/m^3 (24-hour)
Resolution	0.1 µg/m^3, updated every 1 second
Precision	±2.0 µg/m^3, <80 µg/m^3, 4-5 µg/m^3 > 80 µg/m^3 (24-hour average)
Span drift	0.02% per day
Accuracy (mass measurement)	±5% using NIST-traceable mass foil set
Air flow rate	1 m^3/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. Model 5030i/SHARP Monitor must be weather protected within range 4° to 50°C Optional Complete Outdoor Enclosure provides complete weather protection
Non-condensing	>95% RH inside
Output	RS232/RS485, TCP/IP, 10 status relays and power fail indication (standard). 9 user-defined analog outputs (0-100mV, 0-1, 0.5 or 0-10 Vdc), six 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	100-240 VAC, 50-60 Hz recommended, 805 watts (115V); 880 watts maximum (220-240V, instrument, heater & pump). Pump: 120 VAC/60 Hz: 4.25A; 240 VAC/50 Hz: 2.25A
Physical dimensions	16.75" (42.5 cm) W × 23" (58.4 cm) D × 14.16" (36 cm) H
Weight	57.6 lbs (26.1 kg)
Protocols	C-Link, MODBUS TCP/IP, Gesytec (Bayern-Hessen), ESM Protocol, Streaming data and NTP (Network Time Protocol). Simultaneous connections from different locations over Ethernet
Safety and electrical designations	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
Approvals and certifications	U.S. EPA PM-2.5 Equivalent Monitor (EQPM-0609-184), UKCA

Ordering information

Model 5030i SHARP Synchronized Hybrid Ambient Real-time Particulate Monitor
Choose from the following configurations/options to customize your own Model 5030i SHARP Monitor
1. Nominal supply voltage and frequency
A = 110 VAC 50/60 Hz
B = 220 VAC 50/60 Hz
D = 220 VAC 50/60 Hz (with China power cord)
2. Tube options
H = Extended tube assembly (6') Includes SS tube union and Teflon™ ferrule
N = No extended tube assembly
T = Tripod
B = Tripod and extended tube assembly (6') Includes SS tube union and nylon ferrule
3. Inlet options
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-2.5C VSCC
W = VSCC inlet combo PM-10 traditional 1st stage w/PM-2.5C VSCC
P = TE inlet combo PM-10 US EPA 1st stage w/TE 2.5C US EPA
Q = TE inlet combo PM-10 traditional 1st stage w/TE 2.5C US EPA
X* = Thermo Fisher inlet combo PM-10 US EPA 1st stage w/PM-2.5 TF
Y* = Thermo Fisher inlet combo PM-10 traditional 1st Stage w/PM-2.5 TF
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 DPM10/01/00), 1 m3/h
4 = PM-2.5 Inlet (EU-style DPM 25/01/00), 1 m3/h
N = No inlet
4. Optional I/O
A = None (standard)
C = I/O expansion board; 4-20mA outputs – 6 channels, 0-10v inputs – 8 channels
N = No inlet
5. Mounting Hardware
A = Bench mounting and ears/handles, EIA
Included
Heated sample tube (1m)
Sample pump (Universal)

*X and Y are not US EPA approved and hence recommended for research use only.

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Your order code: 5030i

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