

ES-642

Particulate Monitoring Solutions

Remote Dust Monitor Model ES-642

INDUSTRIAL OUTPUTS

MODBUS

Serial ASCII Text

RS-232 and RS-485

0-10 Volts Analog Signal

4-20 mA Analog Signal

FEATURES

Automatic zero calibration

Controlled input heater

Easily removable filters

Contact closure alarm output

Front panel LCD Display

Sealed environmental enclosure

APPLICATIONS

Building Automation

Military Applications

Environmental Cleanup Sites

Air Pollution Level Monitoring

Dust Level Warning Systems



- Designed to provide accurate information on particle concentration and operate continuously in adverse environments.
- Special features such as the purge air system and automatic zero calibration enable the monitor to operate 24/7.
- A sheath air system isolates the aerosol in the chamber to keep the optics clean for long term reliability and low maintenance.
- LCD Display provided information on operation including: power, heater power, flow operation, status and particulate concentration.

The ES-642 Remote Dust Monitor is an industrial air-quality sensor designed to provide accurate measurements of particle concentration in both indoor and outdoor environments. The unit is supplied in a rugged weatherproof enclosure. It includes an LCD display to provide information about particulate concentration, flow rate, instrument status and power. The electronics and optical system are protected from moisture by a built in intake heater that is humidity level controlled. The heater power is regulated to maintain a minimum humidity level. Additional features include a purge air system and an automatic zero calibration routine. The sensor can be wall mounted or installed on a vertical mast up to 3 inch in diameter.

The ES-642 is supplied with a 10 ft cable and connector for power (15 to 40 VDC) and signal output.

The ES-642 measures particulate concentration using a highly sensitive forward scatter laser nephelometer, having a measurement range of 0 to 100 mg/cubic meter or 0 to 100,000 ug/cubic meter. Optional sharp-cut cyclones are used to set the measurement level of the ES-642. As supplied it provides particulate monitoring for TSP, with the addition of the sharp-cut cyclone it can be set for particulate smaller than PM10 or smaller than PM2.5, or PM1. The accuracy of the instrument is +/-5% based on a traceable PSL 0.6 micron reference standard.

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PARAMETER	SPECIFICATION
Measurement Principles:	Particulate concentration by forward light scatter laser Nephelometer.
Available Cut Points:	TSP Inlet Standard. PM ₁₀ , PM _{2.5} , and PM ₁ sharp-cut cyclone inlets available.
Measurement Range:	0 to 100 mg/m ³ (0 to 100,000 μg/m ³)
Measurement Sensitivity:	.001 mg/m ³ .
Nephelometer Accuracy:	± 5% traceable standard with 0.6um PSL.
Particle Size Sensitivity:	0.1 to 100 micron. Optimal sensitivity 0.5 to 10 micron particles.
Display:	2 X 16 backlit LCD. Provides information on operation including: Power, Flow Operation, Status and Concentration.
Zero Calibration:	Automatic Zero Calibration every hour or as programmed from 1 to 999 minutes.
Flow Rate:	2.0 liters/minute ± 0.1 lpm.
Power:	15 – 40 VDC @ 1.5 A maximum.
Power Consumption:	350 mA (no heater) 1.1 A (with heater) @ 15 VDC.
Analog Output:	4-20 mA and 0 – 10 VDC.
Digital I/O:	RS-485 full and half duplex, RS-232.
Serial Communication:	ASCII Text data format and MODBUS RTU.
Alarm Output:	Normally open and normally closed relay 30 VDC @ 1A maximum.
Operating Temperature:	0 to +50°C . (Ambient Temperature Sensor Range -30 to +50°C).
Barometric Pressure:	600 to 1040 mbar pressure sensor range.
Ambient Humidity Range:	0 to 90% RH, non-condensing.
Intake Moisture Control:	Automatic 10 Watt inlet heater module controlled to sample RH set point.
Factory Service Interval:	24 Months typical, under continuous use in normal ambient air.
Mounting Options:	Wall mount bracket standard. Optional EX-905 tripod.
Unit Weight:	2.27 kg (6.0 lbs)
Unit Dimensions:	22.9cm high, 17.8cm wide, 10.8cm deep. (9.0" x 7.0" x 4.25"). w/out inlet assy. 48.3cm high, 17.8cm wide, 10.8cm deep. (19.0" x 7.0" x 4.25"). w/ inlet assy.

Specifications are subject to change without notice