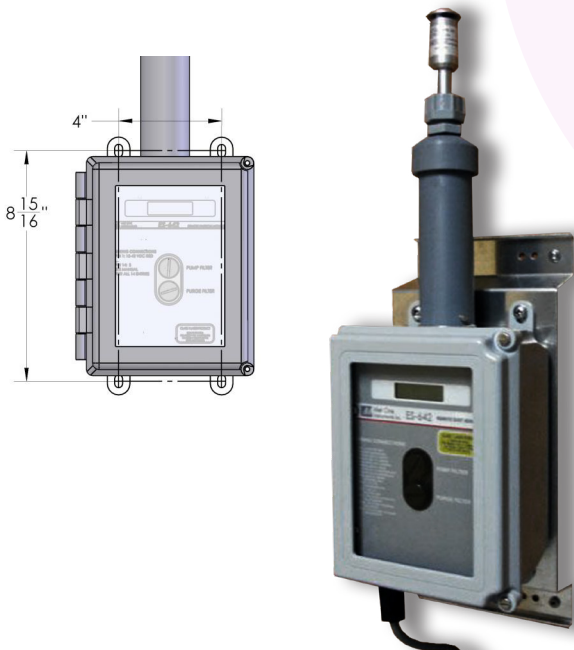


# Remote Dust Monitor

## MODEL ES-642

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.



## BENEFITS

- 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 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 inches 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 particulates smaller than  $PM_{10}$  or smaller than  $PM_{2.5}$  or  $PM_1$ . The accuracy of the instrument is  $\pm 5\%$  based on a traceable PSL 0.6 micron reference standard.

## APPLICATIONS

- Building automation
- Military
- Environmental cleanup sites
- Air pollution level monitoring
- Dust level warning systems.

## FEATURES

- Automatic zero calibration
- Controlled input heater
- Easily removable filter
- Contact closure alarm output
- Front panel LCD Display
- Sealed environmental enclosure.

## SPECIFICATIONS

### Measurement

<b>Principles:</b>	Particulate concentration by forward light scatter laser nephelometer
<b>Available Cut Points:</b>	TSP Inlet Standard. PM <sub>10</sub> , PM <sub>2.5</sub> , and PM <sub>1</sub> sharp-cut cyclone inlets available
<b>Measurement Range:</b>	0 to 100 mg/m <sup>3</sup> (0 to 100,000 µg/m <sup>3</sup> )
<b>Measurement Sensitivity:</b>	.001 mg/m <sup>3</sup>
<b>Nephelometer Accuracy:</b>	± 5 % traceable standard with 0.6 µm PSL
<b>Particle Size Sensitivity:</b>	0.1 to 100 micron. Optimal sensitivity 0.5 to 10 micron particles
<b>Zero Calibration:</b>	Automatic zero calibration every hour or as programmed from 1 to 999 minutes
<b>Flow Rate:</b>	2.0 liters/minute ± 0.1 lpm
<b>Power:</b>	15 - 40 VDC @ 1.5 A maximum
<b>Power Consumption:</b>	350 mA (no heater) 1.1 A (with heater) @ 15 VDC
<b>Operating Temperature:</b>	- 10 to + 50 ° C
<b>Ambient Temperature Sensor Range:</b>	- 30 to + 50 ° C
<b>Barometric Pressure:</b>	600 to 1040 mbar pressure sensor range
<b>Ambient Humidity Range:</b>	0 - 90 % RH, non-condensing
<b>Intake Moisture Control:</b>	Automatic 10 watt inlet heater module controlled to sample RH set point
<b>Factory Service Interval:</b>	24 months typical, under continuous use in normal ambient air
<b>Mounting Options:</b>	Wall mount bracket standard Optional EX-905 tripod
<b>Unit Weight:</b>	2.27 kg
<b>Unit Dimensions:</b>	229 x 178 x 108 mm without inlet assy 483 x 178 x 108 mm with inlet assy.

## COMMUNICATION

### Display:

- 2 x 16 backlit LCD
- Provides information on operation including power, flow operation, status and concentration

### Analog Output:

- 4 - 20 mA
- 0 - 10 VDC

### Digital I/O:

- RS-485 full and half duplex
- RS-232

### Serial Communication:

- ASCII Text data format
- MODBUS RTU

### Alarm Output:

- Normally open and normally closed relay 30 VDC @ 1A maximum.

## INDUSTRIAL OUTPUTS

- MODBUS
- Serial ASCII Text
- RS-232
- RS-485
- 0 - 10 volts analog signal
- 4 - 20 mA analog signal.

