

## 11-D

# Dust Decoder – portable aerosol spectrometer

Precise and compact – for counts and dust mass

- Reliable particle sizing and counting
- Battery operation for indoor and outdoor
- Robust design for highest flexibility



## Features

- **Unique measurement range in one device**  
Inhalable, thoracic, respirable, pm<sub>10</sub>, pm<sub>2.5</sub> and pm<sub>1</sub> TSP, PM<sub>10</sub>, PM<sub>4</sub>, PM<sub>2.5</sub>, PM<sub>1</sub>, PM<sub>Coarse</sub> and Total Counts
- **31 equidistant size channels**  
PSL traceable particle size distribution
- **GRIMM Dual Technology**  
With integrated Filter
- **Intelligent Li-Ion battery**  
For portable use up to 10 hours, recharging in 3 hours with smart desktop charger
- **Optical cell with internal sensor for T and RH**  
Rinse air for protecting laser and detector

## Technical data

<b>Detection principle</b>	Light scattering at single particles with diode laser
<b>Output</b>	Inhalable, thoracic, respirable, pm <sub>10</sub> , pm <sub>2.5</sub> and pm <sub>1</sub> TSP, PM <sub>10</sub> , PM <sub>4</sub> , PM <sub>2.5</sub> , PM <sub>1</sub> , PM <sub>Coarse</sub> and Total Counts Number concentration and size distribution
<b>Particle size range</b>	0.253 ... 35.15 µm
<b>Size channels</b>	31, equidistant
<b>Particle number</b>	0 ... 5 300 000 particles/l
<b>Dust mass</b>	0 µg/m <sup>3</sup> ... 100 mg/m <sup>3</sup>
<b>Reproducibility</b>	98.2% for 0.3 µm, 99.5% for 0.5 µm, 91.8% for 1.0 µm, 91.0% for 5 µm, meets ISO 21501-1
<b>Time resolution</b>	<ul style="list-style-type: none"> <li>▪ 6 s, 31 channels (selectable storage intervals 6 s, 1, 5, 10, 15, 30 min, 1 h)</li> <li>▪ 1 s, 16 channels (two selectable size intervals below or above 2.989 µm)</li> </ul>
<b>Volume flow rate</b>	1.2 l/min ± 3% due to self regulation according to ISO 21501-1, automatic altitude correction up to 5000 m
<b>Rinse air</b>	0.4 l/min, protects laser optics, reference air for self-test
<b>Gravimetric control</b>	47 mm PTFE filter
<b>Power supply</b>	<ul style="list-style-type: none"> <li>▪ In: 100 ... 240 VAC, 47 ... 60 Hz,</li> <li>▪ Out: 13 VDC, 2.5 A</li> </ul>
<b>Battery</b>	Intelligent Li-Ion-battery, 10.8 V, 6.8 Ah for minimum 10 h operation, recharge: 3 h with desktop smart quick charger
<b>Power input</b>	5.4 W

## Benefits

- **Wide range of applications**  
In indoor and outdoor e.g. aerosol science, process control, PM-measurements, workplace monitoring (PEL, EN 481) with high time resolution, IAQ in vehicles and buildings
- **Aerodynamic aerosol focusing**  
Total inlet flow (1.2 l/min) analyzed in the optical cell, no border zone error
- **Highest flexibility**  
Additional information of particle number, particle surface, and dust mass distribution with software
- **Compact design**  
Allows easy integration in laboratory or mobile setups

<b>Data interfaces</b>	Ethernet, USB (Type-B), RS-232, Bluetooth, USB flash drive
<b>Dimensions (l x w x h)</b>	282 x 124 x 67 mm (11.1 x 4.9 x 2.6 inch)
<b>Weight</b>	1.6 kg (3.5 lbs), Li-ion battery 0.33 kg (0.7 lbs)
<b>Operating conditions</b>	0 ... +40 °C (32 ... 104 °F) RH < 95% non condensing, non-corrosive or explosive gases
<b>Transport and storage</b>	-20 ... +50 °C (-4 ... 122 °F) RH < 95%
<b>Accessories</b>	1146 GPS sensor 1152 Isokinetic sampling probe for 4 ... 25 m/s 1158 TRH External sensor for temperature and relative humidity 1159-10, 1159-100 Capillary diluter (1:10 or 1:100)

