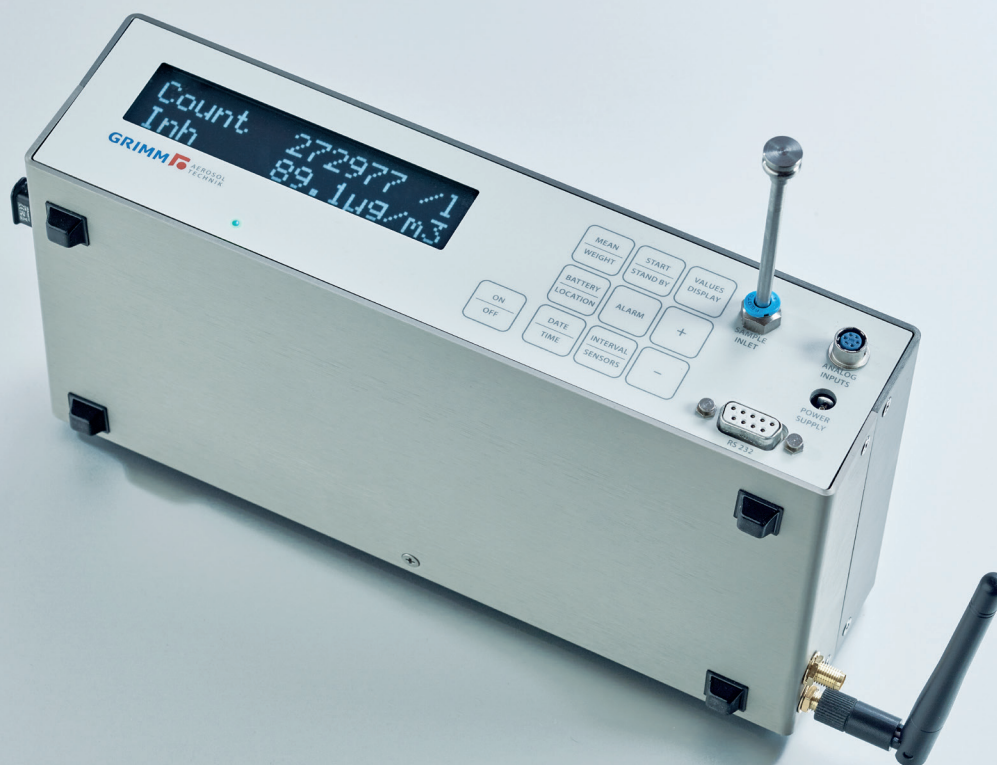


## 11-D

# 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, pm10, pm2.5 and pm1
  - 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 temperature and relative humidity**  
Rinse air for protecting laser and detector

## 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

## TECHNICAL DATA

|                                      |  |
|--------------------------------------|--|
| <b>Detection principle</b>           | Light scattering at single particles with diode laser  |
| <b>Output</b>                        | <ul style="list-style-type: none"> <li>• Inhalable, thoracic, respirable, pm10, pm2.5 and pm1</li> <li>• 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</li> <li>• Number concentration and size distribution</li> </ul> |
| <b>Particle size range</b>           | 0.253 ... 35.15 µm   |
| <b>Size channels</b>                 | 31, equidistant  |
| <b>Particle number concentration</b> | 0 ... 5,300,000 particles/l  |
| <b>Dust mass concentration</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 6s, 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 5,000 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 consumption</b>      | 5.4 W   |
| <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%   |

## OPTIONAL ACCESSORIES

- 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 oder 1:100)

