

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, PM₁₀, PM₄, PM_{2.5}, PM₁, PM_{coarse} 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

TECHNICAL DATA

Detection principle	Light scattering at single particles with diode laser
Output	<ul style="list-style-type: none"> • Inhalable, thoracic, respirable, pm10, pm2.5 and pm1 • TSP, PM₁₀, PM₄, PM_{2.5}, PM₁, PM_{coarse} and Total Counts • Number concentration and size distribution
Particle size range	0.253 ... 35.15 µm
Size channels	31, equidistant
Particle number	0 ... 5,300,000 particles/l
Dust mass	0 µg/m ³ ... 100 mg/m ³
Reproducibility	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
Time resolution	<ul style="list-style-type: none"> • 6s, 31 channels (selectable storage intervals 6s, 1, 5, 10, 15, 30 min, 1 h) • 1s, 16 channels (two selectable size intervals below or above 2.989 µm)
Volume flow rate	1.2 l/min ± 3% due to self regulation according to ISO 21501-1, automatic altitude correction up to 5000 m
Rinse air	0.4 l/min, protects laser optics, reference air for self-test
Gravimetric control	47 mm PTFE filter
Power supply	<ul style="list-style-type: none"> • In: 100 ... 240 VAC, 47 ... 60 Hz, • Out: 13 VDC, 2.5 A
Battery	Intelligent Li-Ion-battery, 10.8 V, 6.8 Ah for minimum 10 h operation, recharge: 3 h with desktop smart quick charger
Power consumption	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

Data interfaces	Ethernet, USB (Type-B), RS-232, Bluetooth, USB flash drive
Dimensions (l x w x h)	282 x 124 x 67 mm (11.1 x 4.9 x 2.6 inch)
Weight	1.6 kg (3.5 lbs), Li-ion battery 0.33 kg (0.7 lbs)
Operating conditions	0 ... +40 °C (32 ... 104 °F) RH < 95% non condensing, non-corrosive or explosive gases
Transport and storage	-20 ... +50 °C (-4 ... 122 °F) RH < 95%
Accessories	<ul style="list-style-type: none"> • 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)

