

# THE STANDARD FOR PORTABLE AEROSOL SPECTROMETER



## MODEL 11-C (CLASSIC)

For more than 30 years GRIMM aerosol spectrometers are successfully used all over the world and appreciated by thousands of users. The model 11-C combines in its compact and rugged design both reliable optical particle detection for counting and classifying dust particles as well as advanced data communication. The allrounder with no limits for all your applications! The 11-C is suitable for continuous measurements via power supply or flexible usage with a battery and remote control for real time data acquisition and data analysis.



This configuration puts the 11-C into the worldwide leading position of portable aerosol spectrometers for any common application such as particle number concentration, PM-values or particle size distribution. The best choice for reliable, flexible and real time measurements for indoor air quality, e.g. at workplaces, inside of vehicles or for process analysis.

## YOUR BENEFITS

- Versatile data acquisition and communication (Bluetooth, USB, Ethernet, RS-232, SD-card)
- Real-time monitoring of particle number and PM values (PM<sub>10</sub>, PM<sub>2.5</sub> and PM<sub>1</sub>)
- Additional information for particle size distribution, particle surface, and dust mass
- High precision with 31 size channels and good reproducibility
- Integrated 47 mm PTFE-filter (GRIMM dual technology)
- Self-test for all optical and pneumatic components assures high quality standards
- Internal rinsing air protects the laser and detector in the optical cell
- Optional sensors for temperature and relative humidity
- Ease of use via keypad or GRIMM software (cordless)
- 11 size channels < 1µm for precise submicron detection
- Total inlet volume flow (1.2 liter/min) is analyzed in the optical cell
- Excellent counting statistics and reproducibility at low and high dust concentrations

## APPLICATIONS

- PM<sub>2.5</sub> in indoor environment according to VDI 4300, part 11
- Indoor air quality (IAQ) in buildings and vehicles
- Dust pollution measurements
- Workplace monitoring
- Process control in industry



PM<sub>10</sub>

PM<sub>2.5</sub>

EN 481

0.25-32 µm

REAL-TIME

# TECHNICAL DATA

## SPECIFICATION

Measurement range	Dust fractions (EN 481) inhalable, thoracic, and respirable PM <sub>10</sub> , PM <sub>2.5</sub> and PM <sub>1</sub> as well as number concentration, and size distribution
Particle size range	0.25 – 32 µm
Size channels	31 in total 0.25/0.28/0.3/0.35/0.4/0.45/0.5/0.58/0.65/0.7/0.8/1/1.3/1.6/2/2.5/3/3.5/4/5/6.5/7.5/8.5/10/12.5/15/17.5/20/25/30/32 [µm]
Particle number	0 – 3 000 000 particles/liter
Dust mass	0.1 µg/m <sup>3</sup> – 100 mg/m <sup>3</sup>
Reproducibility	± 3% for total measuring range

## FUNCTION

Particle detection principle	Light scattering at single particles Detection volume aerodynamically focused, no boarder zone error
Optical cell	Diode laser 660 nm, P <sub>max</sub> = 60 mW, P <sub>nom</sub> 0.5/32 mW CW (multiplex)
Detector	Super fast signal processing with 2 µs pulse length, 2 x 16 raw data channels
Time resolution	6 s, 31 channels (selectable storage intervals 6 s, 1, 5, 10, 15, 30, 60 min)
Volume flow	1.2 l/min, ± 3% constant due self regulation
Internal rinsing air	0.4 l/min, protects laser optics, reference air for self-test
Sample collection	47 mm PTFE filter

## HANDLING

Operation	Keypad or PC with GRIMM software (wireless or data cable)
Interfaces	Bluetooth, USB, Ethernet, RS-232, 4 GByte SD internal card
Analogue output	3 values (0 – 10 V), for external sensors
Power supply	in: 100 – 240 VAC, 47 – 63 Hz, out: 18 VDC, 2.5 A
Battery	Li-Ion-battery, 11.1 V, 4 Ah for 8 h operation
Power input	5.4 W standard, 14.4 W maximum during battery charging
Dimensions	32 x 18 x 7 cm /12.6 x 7.1 x 2.8 inches (L x W x H)
Weight	2.4 kg / 5.3 lbs
Operating conditions	+4 to +40°C (39 – 104°F), RH < 95 %, non-condensing, non-corrosive or explosive gases
Storage and transport	-20 to +50°C (-4 – 122°F), RH < 95 %

This technical data might be changed without notice.

Dealer:

D\_E\_11-C\_V1.0