

PARTICLE COUNTERS FOR AUTOMOTIVE EMISSION MEASUREMENTS

PMP-CPC 5430 | 5431

The GRIMM 5430 and 5431 are high accuracy stationary particle counters for automotive emission measurements with improved response time ($t_{10} - t_{90} < 3$ s) and an aerosol inlet flow rate of 0.6 L/min.

The instruments comply with the GPRE particle measurement program (PMP) for Euro 5 and 6 regulation 83. The new detection head enables single particle counting up to 50 000 p/cm³ with a coincidence correction <10% for up to 23 000 particles/cm³. The model 5431 is equipped with an internal sample pump.

As all GRIMM CPC models, the 5430 and 5431 feature the well-established condensate removal and anti-spill saturator design with an integrated saturator shutter, enabling the transport of the CPC without removing or drying the saturator.



FEATURES

- compact and rugged counter for automotive emission measurements
- aerosol flow rate = 0.6 L/min
- single particle counting up to 50 000 p/cm³
- coincidence correction <10% up to 23 000 p/cm³
- linearity $R^2 \geq 0.98$ for 1 – 23 000 p/cm³
- improved response time with $t_{10} - t_{90} < 3$ s
- counting efficiency within $50 \pm 12\%$ at 23 nm and $\geq 90\%$ at 41 nm
- anti-spill saturator design
- operates with air and inert gases
- continuous removal of condensate
- comprehensive self-test for highest reliability

APPLICATIONS

- engine emissions for Euro 5 and 6 certifications
- testing of Diesel particulate filter
- particle counter in dilution systems
- 1 Hz resolution for number concentration measurement in driving cycles

CPC

23 nm

PMP

EURO 5 and 6

real - time

TECHNICAL DATA

SPECIFICATIONS

working fluid	n-butanol (n-butyl alcohol)
concentration range	0 – 23 000 p/cm ³ single particle counting
coincidence correction	< 10%
concentration linearity	R ² ≥ 0.98
concentration accuracy	≤ 10%
response time t ₁₀ – t ₉₀	< 3 s
counting efficiency at 23 nm	50 ± 12%, independent of altitude above sea level
counting efficiency at 41 nm	≥ 90%, independent of altitude above sea level
false background counts	< 0.001 p/cm ³
readability	0.1 p/cm ³

FUNCTION

internal pump	available in model 5431
sample flow rate	0.6 L/min
flow control	temperature stabilized critical orifice

HANDLING

ambient temperature	10 – 40°C (50 – 104°F)
ambient humidity	0 – 95% RH, non-condensing
absolute pressure range	500 – 1100 mbar
power supply	90 – 264 VAC, 47 – 63 Hz
power consumption	80 – 130 W
interfaces	RS-232, USB
dimensions (h x w x d)	22.6 x 25.4 x 22.3 cm (8.9 x 10.0 x 8.8 in)
weight	8.9 kg (19.6 lbs)