SPECIFICATIONS

PARTICLE SENSOR

KA-03

RION CO., LTD.

3-20-41 Higashimotomachi, Kokubunji, Tokyo 185-8533, Japan

No. 12009E 12-10 Printed in Japan

Outline

This KA-03 uses the light scattering principle to detect airborne particles according to ISO 21501-4:2007 and JIS B 9921:2010. The unit measures particle size and particle count and is designed to be used as a particle sensor in a multi-point monitoring system.
The unit incorporates the proprietary Rion multi-point system interface which allows connection to a multi-point monitoring system.
Because the unit does not include controls or indicators for measurement, it must be controlled by software (such as RP Monitor EVO or similar) used for operation of a multi-point monitoring system.

The unit has five measurable particle size ranges (≥0.3 μm, ≥0.5 μm, ≥1.0 μm, ≥2.0 μm, and ≥5.0 μm) and the flow rate is 2.83 L/min.

The unit incorporates an alarm function that can be used to trigger external alarm equipment.

Specifications

Optical system	90° sideway light scattering method
Light source	Laser diode (wavelength 780 nm, rated output 35 mW)
Laser product class	Class 1, IEC 60825-1 (2007) Internal particle detection mechanism uses Class 3B laser
Light detector	Photodiode
Collecting optics	Spherical mirror
Pump	Diaphragm pump
Allowable measurement sample types	Air
Sample pressure range	Atmospheric pressure
Calibration	By polystyrene latex (PSL) particles with refractive index 1.6
Minimum detectable particle size	0.3 μm (for spherical particles with refractive index 1.6)
Measurable particle size ranges	Five channels (≥0.3 μm, ≥0.5 μm, ≥1.0 μm, ≥2.0 μm, ≥5.0 μm)
Counting efficiency	50% ± 20% (measuring PSL particles in the range of 0.3 μm) 100% ± 10% (measuring PSL particles in the range with 1.5 to 2 times larger than 0.3 μm)

Size resolution	15% or less (in the vicinity of 0.5 μm PSL particles)
Responsivity	0.5% or less
Maximum particle number concentration	
	140,000,000 particles/m^3 (coincidence loss within 10%)
False count rate	140 particles/m^3 or less (95% confidence interval)
Flow rate	2.83 L/min
Warm-up time	10 minutes or less
Display	
POWER	Serves to indicate the status of the power and the measurement operation
SENSOR	Serves to indicate the status of the particle detector section and the light source (laser diode)
ALARM	Serves to indicate the alarm output
DATA LINK	Serves to indicate the status of the communication
Inputs/outputs	
DATA LINK connector	
	Multi-point system interface
ALARM connector	Open collector (maximum load: 20 V DC, 100 mA)
POWER connector	Connect an AC adapter
Tube connector	
INLET	Outer diameter 5 mm
Power	
AC adapter	
Rated input	100 V to 240 V AC, 50/60 HZ, 0.9 A
Rated output	12 V DC
	Maximum power consumption: Approx. 0.5 A
Environmental Requirements	
Operation Environments	
	Indoor Use Only
Altitude	Up to 2000 m
Supply Voltage Fluctuations	
	100 to 240 V AC ± 10%
Overvoltage Category	Ⅱ
Pollution Degree	2
Protection Class	Ⅰ

Environmental conditions for operation

+15˚C to +40˚C, 85% RH or less (no condensation)

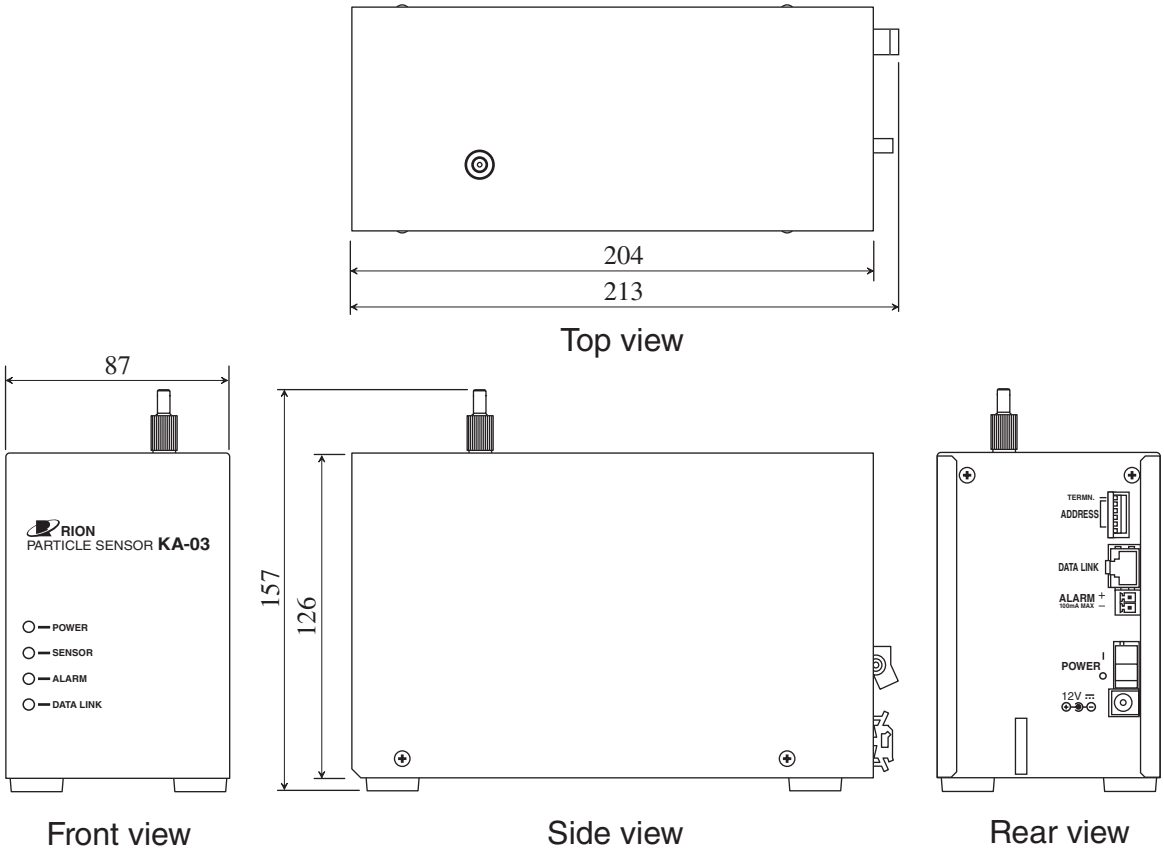
Environmental conditions for storage

-10˚C to +50˚C, 90% RH or less (no condensation)

Dimensions	Approx. 126 (H) × 87 (W) × 204 (D) mm (without protruding parts)	
	Approx. 157 (H) × 87 (W) × 213 (D) mm (maximum)	
Weight	Approx. 2 kg	
Supplied accessories	AC adapter	1
	AC power cord (for use in Japan with 100 V AC)	1
	Sampling tube (7 mm × 5 mm dia., 2 m)	1
	Inlet cap	1
	Concise manual	1
	Inspection certificate	1
Options	Zero count filter	
	Tube (for connecting zero count filter: 9 mm × 5 mm dia., 0.04 m)	
	Isokinetic probe	
	Isokinetic probe joint	
	Alarm connector plug	
	Terminator	KE-80-S03
	Sub line cable	
	5 m	KZ-44-S01
	10 m	KZ-44-S02
	20 m	KZ-44-S03
	30 m	KZ-44-S04
	40 m	KZ-44-S05
	50 m	KZ-44-S06
	Communication cable (shielded: 5 m, 10 m, 20 m, 30 m)	
	Communication cable (unshielded: 5 m, 10 m, 20 m, 30 m)	
Factory options	Particle size change (≥0.5 µm, ≥1.0 µm, ≥2.0 µm, ≥5.0 µm)	
Consumable parts	Laser diode, O ring of inlet, pump, exhaust filter	

Recommended calibration interval

One year



Unit: mm

Dimensional Drawings

Specifications subject to change without notice