SPECIFICATIONS

PARTICLE SENSOR

KA-02

RION CO., LTD.

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No. 12007-1E 12-12 Printed in Japan

Outline

The KA-02 uses the light scattering principle to detect airborne particles. 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 a power supply, pump, and display, these functions must be provided through connection to external equipment.
The unit has two measurable particle size ranges (≥0.3 μm and ≥0.5 μm) and the flow rate is 2.83 L/min.
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.

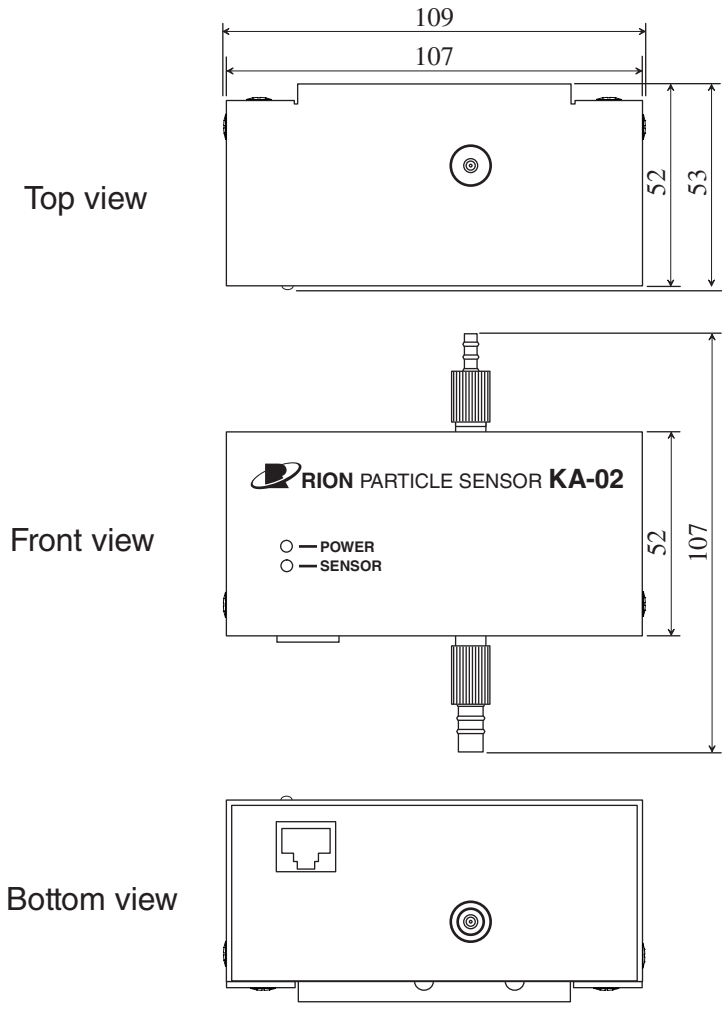
The unit incorporates an alarm function that can be used to trigger external alarm equipment.

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
Allowable measurement sample types	Air
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)
Size range	Two channels (≥0.3 μm, ≥0.5 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) (When the unit corresponds to factory option KA-02-S15)
Responsivity	0.5% or less (When the unit corresponds to factory option KA-02-S15)
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) (When the unit corresponds to factory option KA-02-S15)
Flow rate	2.83 L/min
Flow control	Flow rate controlled by critical orifice connected to vacuum source of -60 kPa (gauge pressure) or lower
Indicators	
POWER	Serves to indicate the status of the power and the alarm signal
SENSOR	Serves to indicate the status of the particle detector section and the light source (laser diode)
Inputs/outputs	
Connector	RJ-45
Internal interface	Multi-point system interface
Alarm function	TTL level (drive current: max. 10 mA)
Sample inlet/outlet	
INLET	Outer diameter 1/8-inch (approx. 3.18 mm)
OUTLET	Outer diameter 1/4-inch (approx. 6.35 mm)
Power	9 V to 28 V DC (max. 100 mA at 24 V)
Environmental Requirements	
Operation Environments	
	Indoor Use Only
Altitude	Up to 2000 m
Supply Voltage Fluctuations	
	9 V to 28 V DC (max. 100 mA at 24 V)
Overvoltage Category	Ⅰ
Pollution Degree	2
Protection Class	Ⅲ
Environmental conditions for operation	
	+10˚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. 52 (H) × 107 (W) × 52 (D) mm (without protruding parts)	
	Approx. 107 (H) × 109 (W) × 53 (D) mm (maximum)	
Weight	Approx. 360 g	
Supplied accessories	Hook-and-loop fastener	2
	Inlet cap	1
	Outlet cap	1
	Concise manual	1
	Inspection certificate	1
Options	Zero count filter	
	Tube	
	(for connecting zero count filter: 1/4-inch × 1/8-inch dia., 0.04 m)	
	Isokinetic probe	
	Isokinetic probe joint	
	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
	Sampling tube (Inner diameter 1/8-inch)	
	Exhaust tube	
	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	
	≥0.3 µm, ≥1.0 µm	KA-02-S11
	≥0.5 µm, ≥2.0 µm	KA-02-S12
	≥0.5 µm, ≥5.0 µm	KA-02-S13
	ISO 21501-4 / JIS B 9921 correspondence	KA-02-S15
Consumable parts	Laser diode, O ring of inlet/outlet	
Recommended calibration interval	One year	



Unit: mm

Dimensional Drawings

Specifications subject to change without notice