SPECIFICATIONS

PARTICLE SENSOR

KS-42A

RION CO., LTD.

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No. 05029-6E 25-06 Printed in Japan

Outline

The KS-42A is a sensor which uses the light scattering method for measuring the particle number concentration in liquid. The particle count is determined for various sizes.

By connecting the KS-42A to the controller KE-40B1, a liquid-borne particle counter system with five size ranges (≥0.1 µm, ≥0.15 µm, ≥0.2 µm, ≥0.3 µm, ≥0.5 µm, (factory default setting)) can be created. Using the KE-40B1, it is also possible to freely specify the size ranges for particle detection.

The KS-42A does not have measurement controls or a display for measurement results. It is designed to be used under control of a separate controller KE-40B1 which also supplies power to the KS-42A.
The KS-42A incorporates a leak sensor. If a leak is detected, an alarm output can be activated.
As the KS-42A does not incorporate a flow control circuit for the sample fluid, the flow rate of the sample fluid must be controlled by external means.
The rated sample fluid flow is 10 mL per minute.

Specifications

Optical system	90° sideway light scattering method
Light source	Laser diode (rated output 200 mW; wavelength 850 nm)
Laser product class	Class 1, IEC 60825-1:2014 Internal particle detection mechanism uses Class 3B laser
Light detector	PIN type photodiode
Materials of parts exposed to sample	Synthetic quartz, PFA
Allowable sample type	Fluids which do not corrode the fluid contact materials
Calibration	By polystyrene latex (PSL) particles with refractive index 1.6 in pure water
Minimum detectable particle size	0.1 µm
Measurable particle size range	0.1 µm to 2 µm (with PSL particles of refractive index 1.6 in pure water)

Size range	Freely settable to 0.1 µm and 0.13 µm to 0.5 µm (Up to 10 channels in 0.01 µm steps can be set with controller KE-40B1. Upper limit for smallest particle size channel (CH 1) is 0.19 µm) *The factory default setting is five channels (≥0.1 µm, ≥0.15 µm, ≥0.2 µm, ≥0.3 µm, ≥0.5 µm)
Counting efficiency	70% ± 15% (measuring PSL particles in the range of 0.3 µm, using count of 0.2 µm and above for comparison with reference unit)
Flow rate	10 mL/min
Maximum particle number concentration	1,200 particles/mL (coincidence loss 5% for 0.1 µm particles)
Sample temperature range	+15°C to +35°C (no moisture condensation on flow cell)
Sample pressure range	300 kPa or less (gauge pressure)
Warm-up time	About 10 minutes
Sample inlet/outlet	
INLET	Sample inlet, 2 mm × 4 mm dia. flared tube joint
OUTLET	Sample outlet, 2 mm × 4 mm dia. flared tube joint
Purge air port	
PURGE	Purge gas inlet, Rc 1/8 (1/8 PT female)
Indicators	Two color light emitting diode
PARTICLE MONITOR	Briefly flashes green when particles above minimum detectable particle size are detected
LIQUID LEAK	Lit (green) when leak is not detected within chassis Lit (red) when leak is detected within chassis
CELL	Lit (green) during normal operation Lit (red) when flow cell is contaminated, condensation occurs or particle number concentration in sample fluid exceeded maximum particle number concentration Off when light source is off
LASER	Lit (green) during normal operation Lit (red) when light source temperature is out of range Flashing (red) when light source output is the rated level or below Off when light source is off
POWER	Lit (green) while power to unit is on

Input/output connectors

CONTROLLER For connection of controller KE-40B1

LIQUID LEAK ALARM

Shorted during normal operation, open when internal leak is detected (M3 screw terminal, accepts either electric wire with a 1.25 mm² cross section or spade (Y-type) terminals)

Maximum load: 30 V DC, 1 A or less

Power 12 V DC (supplied via controller KE-40B1)

Electric power consumption

11 VA

Installation inclination angle

Max. 2°

Environmental Requirements

Operation Environments

Indoor Use Only

Altitude Up to 2000 m

Overvoltage Category Ⅱ (when connected to controller KE-40B1)

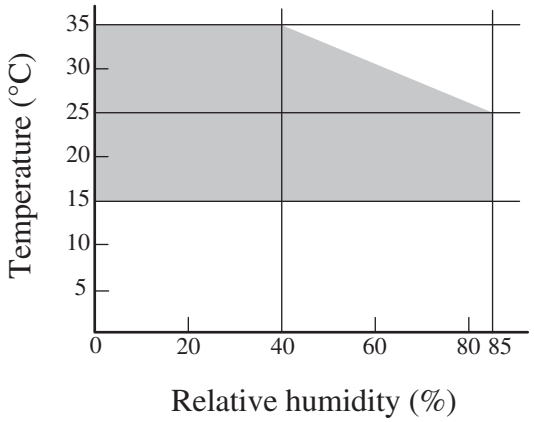
Pollution Degree 2

Protection Class Ⅰ

Environmental conditions for operation

+15°C to +35°C, 85% RH or less

Exactly, shaded section ▭ in the following graph (no condensation)

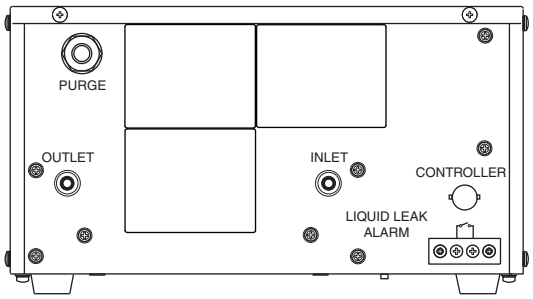


Environmental conditions for storage

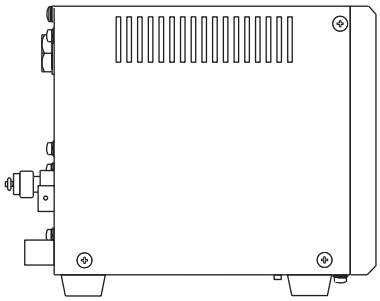
–10°C to +50°C, 90% RH or less

(no condensation and no freezing in internal piping)

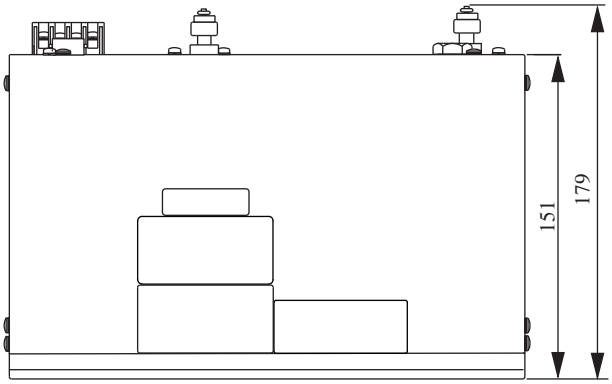
Dimensions	135.2 mm (H) × 245 mm (W) × 179 mm (D) (maximum) 125 mm (H) × 240 mm (W) × 151 mm (D) (excluding protruding parts)	
Weight	Approx. 4 kg	
Supplied Accessories	Tube A vacuum pack	1
	(2 mm × 4 mm dia., 1.5 m flared PFA tube 2, union joint 1)	
	Connection cable A (1 m) KS-42-121	1
	Instruction manual	1
	Instruction sheet for “Transport and Installation”	1
	Liquid-borne particle counter usage precautions	1
	Inspection certificate	1
Option	Connection cable B (5 m) KS-42-123	



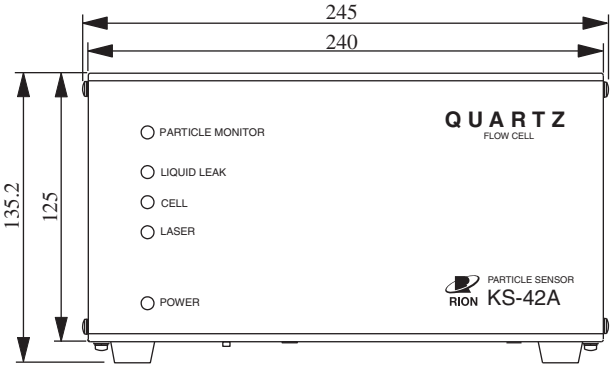
Rear View



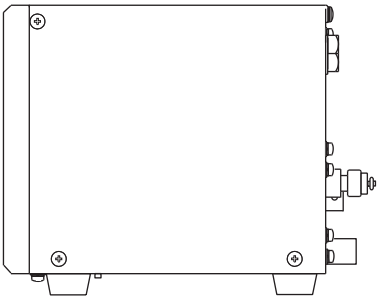
Left Side View



Top View



Front View



Right Side View

Unit: mm

Dimensional Drawings

Specifications subject to change without notice