SPECIFICATIONS

PARTICLE SENSOR

KS-16

RION CO., LTD.

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No. 99018-5E 08-05 Printed in Japan

Outline

The KS-16 is designed to be used as an in-line sensor in a system for measuring the size and number of particles in liquid, using the light-scattering method. Measurement results are output via a built-in interface. The KS-16 consists of the sensor unit and the power supply unit. Particles are measured in five size ranges (≥0.1 µm, ≥0.15 µm, ≥0.2 µm, ≥0.3 µm, ≥0.5 µm), and the sample flow rate is 10 mL per minute.

The KS-16 does not have measurement controls or a display for measurement results. It is designed to be used under control of external equipment such as a computer, and to send measurement results to the external equipment. A standard serial interface and a special Rion multi-point interface for multi-point measurements are built in.

As the KS-16 does not incorporate a flow control circuit for the sample fluid, the flow rate of the sample fluid must be controlled by external means.

* All company names and product names mentioned in this specifications are trademarks or registered trademarks of their respective owners.

Specifications

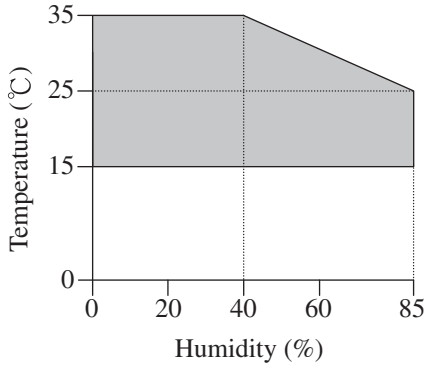
Optical system	90º sideway light-scattering method
Light source	Laser diode (rated output 200 mW; wavelength 830 nm)
Laser product classification	Class 1, IEC 60825-1 (2001) Internal particle detection mechanism uses Class 3B laser
Light detector	PIN type photodiodes
Materials of parts exposed to sample fluid	Synthetic quartz, PFA
Allowable sample fluid types	Fluids which do not corrode the fluid contact materials
Calibration	Polystyrene latex (PSL) spheres* with refractive index 1.6 in pure water *The PSL spheres are calibrated according to the TEM (transmission electron microscopy) by the supplier, JSR Corporation.
Minimum detectable particle size	0.1 µm
Measurable particle size range	0.1 to 2 µm (with PSL particles of refractive index 1.6 in pure water)

Measurement size range	Five channels (≥0.1 µm, ≥0.15 µm, ≥0.2 µm, ≥0.3 µm, ≥0.5 µm)
Counting efficiency	70±15 % (when measuring PSL particles with about 0.3 µm diameter at a range setting of 0.2 µm or higher with the value shown on the reference instrument)
Sample flow rate	10 mL / min
Maximum particle number concentration	1200 particles / mL (coincidence loss 5% for 0.1 µm particles)
Sample fluid temperature range	+15 to +35°C (no moisture condensation on flow cell)
Allowable sample fluid pressure	300 kPa or less (gauge reading)
Warm-up time	10 minutes
Sample fluid ports	
INLET:	Sample fluid inlet, 2×4 dia. flared tube joint
OUTLET:	Sample fluid outlet, 2×4 dia. flared tube joint
PURGE:	Purge gas inlet, Rc 1 / 8 (1 / 8 PT female)
Indicators	
CELL	
Lit (green):	Particle sensor (flow cell) is operating normally.
Lit (red):	Particle sensor is not operating normally, due to contamination, condensation or other causes, or particle concentration in sample fluid exceeds maximum rating of unit.
Off:	Light source is turned off.
LD	
Lit (green):	Light source (laser diode) is operating normally.
Lit (red):	Light source has exceeded rated temperature range.
Flashing (red):	Light source error other than temperature error has occurred.
Off:	Light source is turned off.
POWER	Lights up when power to the unit is turned on.
Input / output connectors	
SERIAL:	Serial interface (D-sub, 9-pin)
DATA LINK:	Interface for configuring a multi-point monitoring system
ALARM (1, 2):	Relay contacts for alarm output (2 sets) Maximum load: 30 V DC, 1 A
Power requirements	Supplied via power supply unit KZ-50 (90 to 250 V AC, supplied power cord only for use in Japan, 100 V AC)

Power consumption Max. 40 VA (including power supply unit)

Ambient conditions for operation

Shaded section ▭ in graph below (no condensation)



Ambient conditions for storage

-10 to +50°C, 85% RH or less
(no condensation and no freezing in internal piping)

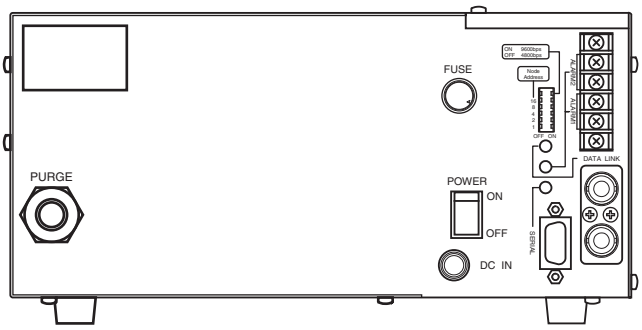
Dimensions and Weight

Main unit (KS-16): 248 (W) × 124 (H) × 193 (D) mm (Max.)
240 (W) × 110 (H) × 150 (D) mm (excluding joints and other protruding parts)
Approx. 3.5 kg

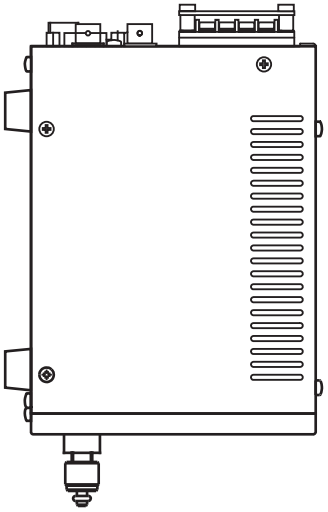
Power supply unit (KZ-50):
71 (W) × 130 (H) × 200 (D) mm (Max.)
71 (W) × 112 (H) × 185 (D) mm (excluding protruding parts)
Approx. 0.8 kg

Supplied Accessories

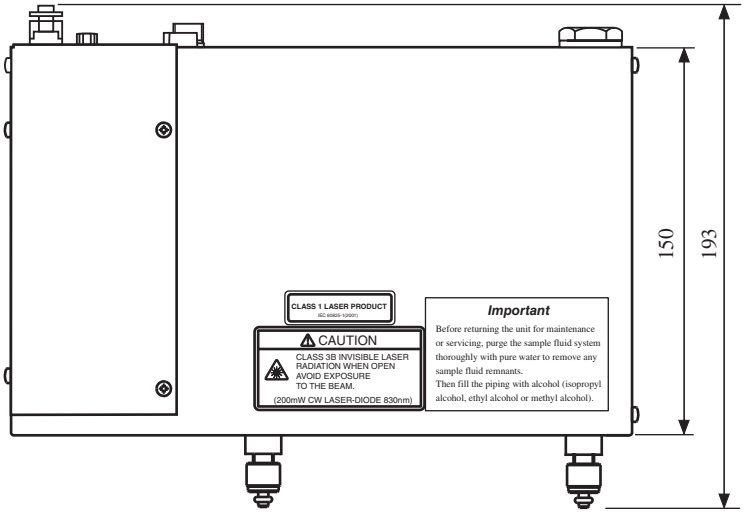
Tube A vacuum pack (2×4 dia., 1.5 m flared PFA tube 2, union joint 1)	1
Power cord (only for use in Japan, 100 V AC)	1
DC cable	1
Power supply unit KZ-50	1
Slow-blow fuse (2 A)	1
Instruction manual	1
Liquid-borne particle counter usage precautions	1
Inspection certificate	1



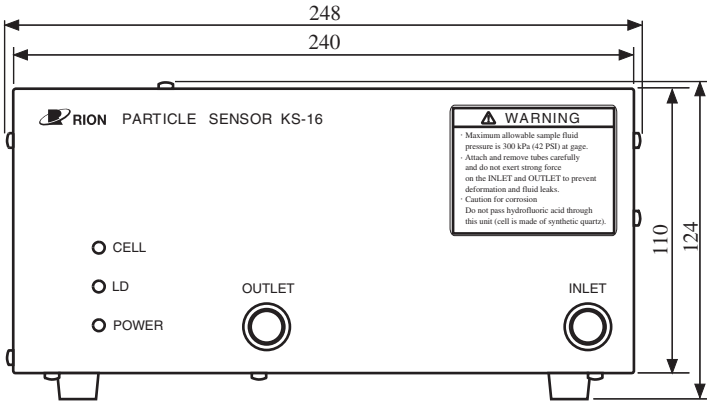
Rear View



Side View



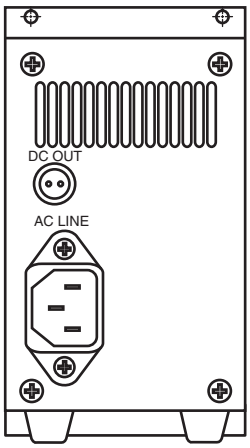
Top View



Front View

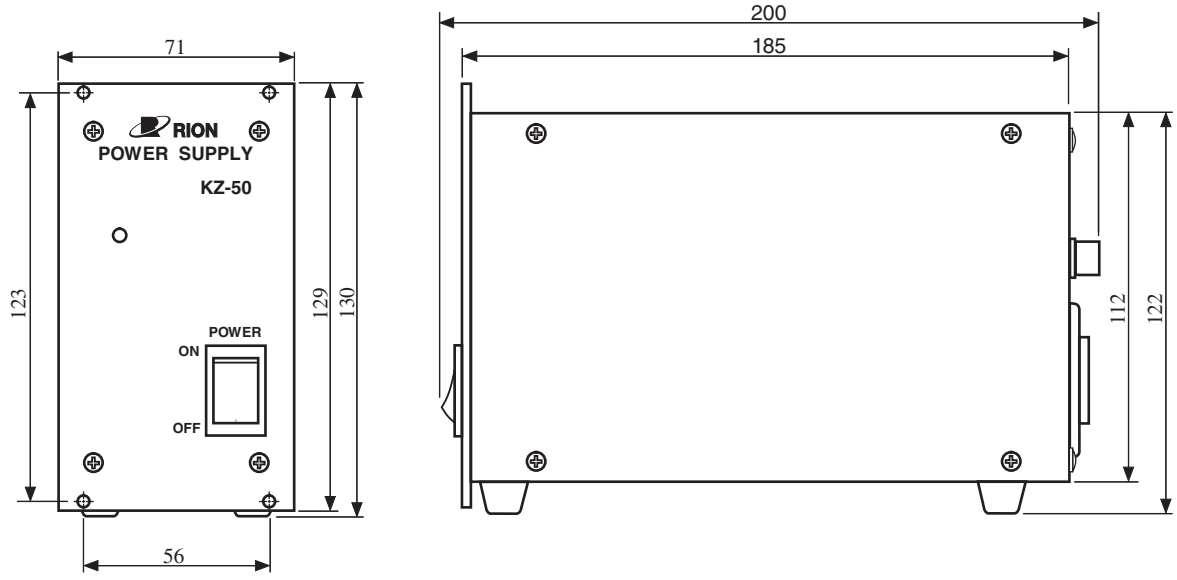
Unit: mm

Main unit (KS-16) dimensions



Rear View

Top View



Front View

Side View

Unit: mm

Power supply unit (KZ-50) dimensions

Specifications subject to change without notice