SPECIFICATIONS

CONTROLLER

KE-40B1

RION CO., LTD.

Outline

This unit is a controller for use in combination with particle sensors such as the KS-42AF.

It supplies power to the particle sensor, controls its operation, and displays measurement data, among other functions.

The unit can also be combined with the syringe sampler KZ-30W1 or KZ-30W2.

The display is a touch panel, so that buttons on the display can be selected and operated using the touch pen, or another suitable implement.

Printout of measurement results on an internal thermal printer is also possible.

An internal serial interface allows for communication with a computer.

Adding an optional CF card allows automatic saving measurement data in text format (as Tab-Separated Values (TSV)).

The unit can output the measurement results converted into an analog signal with a range of 4 mA to 20 mA using a factory option D/A converter interface, so it can be connected directly to an instrumentation system.

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

Specifications

Display

    Display   640 × 480 pixel color LCD (with backlight)

    Display language   English

    Display items

        Measurement screen

               This screen displays particle counts (up to 8 digits (one decimal place), one channel or up to ten channels on simultaneous display), date and time, remaining measurement time, error information, measurement parameter setting and display, etc.

        System Configuration screen

               Date, time, communication parameters, auto print and other system settings

    LED indicators

        START   Lights green to indicate measurement operation

                        Lights when measurement starts

                        Flashes when periodic measurement or preset-time measurement is paused (during measurement operation), and during purging

                        Otherwise, switched off

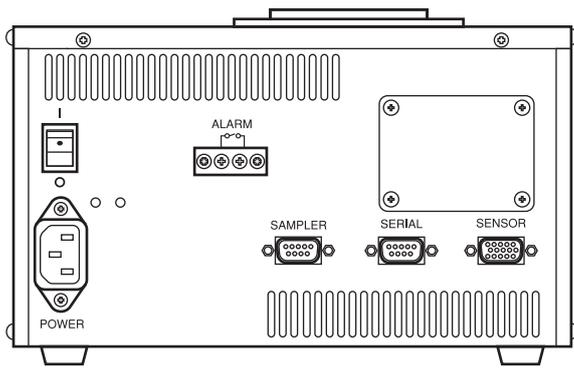|	
STOP	Lights green to indicate that measurement has stopped
	Lights when measurement or purging has stopped (when the START LED is not lit or flashing)
	Otherwise, switched off
PURGE	Lights green to indicate that the system is in syringe sampler Purge mode
	Lights when a syringe sampler is connected and Purge mode is selected, and during purge operation
	Flashes when the syringe sampler encounters an unexpected error when the system is in Purge mode
	Goes out when no syringe sampler is connected, or when the mode is not Purge mode
MEAS.	Lights green to indicate that the system is in syringe sampler measurement mode
	Lights when a syringe sampler is connected and Measurement mode is selected, and during Measurement operation
	Flashes when the syringe sampler encounters an unexpected error when the system is in Measurement mode
	Goes out when no syringe sampler is connected, or when the mode is not Measurement mode
COMBI.	Lights green to indicate that the system is in syringe sampler Combination mode
	Lights when a syringe sampler is connected and Combination mode is selected
	Flashes when the syringe sampler encounters an unexpected error when the system is in Combination mode
	Goes out when no syringe sampler is connected, or when the mode is not Combination mode

Controls

Touch panel	Resistance sensitive

Buttons

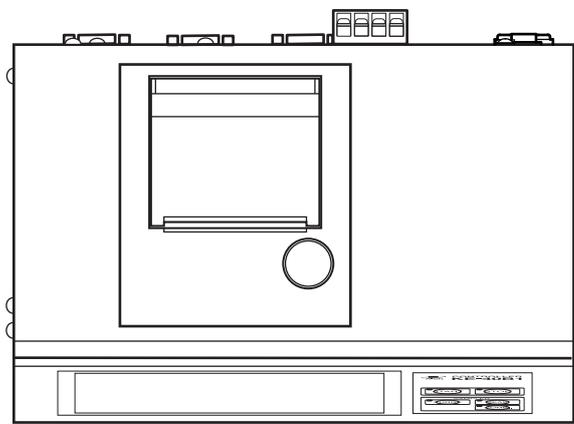|	
START	Starts measurement, and instructs the syringe sampler to start operating
STOP	Stops measurement
MEAS.	Instructs the syringe sampler to enter Measurement mode
PURGE	Instructs the syringe sampler to enter Purge mode
COMBI.	Instructs the syringe sampler to enter Combination mode

Measurement time	10 seconds to 2 hours, and manual
	In Remote status, 1 or 10 minutes can be selected, in addition to the above

Measurement modes

  Manual measurement

Measurement controlled with START and STOP buttons

  Automatic measurement

    Average measurement

Repeated measurement of preset time or volume, up to 99 times, with averaging of results

    Periodic measurement

Repeated measurement can be performed automatically, specifying the time intervals (10 seconds to 24 hours)

    Moving average measurement

During periodic measurement, moving average for 10, 60, or 100 measurements is calculated and results are output via printer, serial link, and D/A converter

Processing results are not shown on the screen

    Preset-time measurement

Starts/Stops measurement at the set time

  Count display modes

Cumulative value, differential value, number concentration (units: /mL, /L)

Alarm	Buzzer sounds and ALARM terminals are closed by relay when particle count in the specified particle size range exceeds the specified alarm level
	When moving average measurement is carried out, buzzer sounds and ALARM terminals are closed by relay at end of measurement
Alarm level	1 to 9999999, or alarm is off
	0.1 to 9999999.0, or alarm is off (at the time of moving average calculation)
	Additional settings in remote mode: Select from 10, 100, 1,000, 10,000, 100,000
Maximum load	
	30 V DC, 1 A
Terminal strip	M3 screw terminal strip (Connect spade terminals (Y-type) or wires of 1.25 mm^2 cross sectional area)

Clock	Auto calendar for year, month, day, hour, minute, second (adjusts for leap years until 2037)
	- Accuracy: ±2 minutes/month or better (at normal temperature)

Internal interfaces

  Serial interface

    Communications parameters

Electrical characteristics	Compliant with JIS X 5101[-1982] (JIS X 5101 corresponds to TIA/EIA-232)
Transmission configuration	Full-duplex, asynchronous
Baud rate	4,800 bps
Data word length	7 bits
Parity	Even
Stop bits	2 bits
Terminator	<CR> <LF>
Connector	9-pin male D-sub connector

  D/A converter interface (factory option)

Converts the particle count in a selected channel into 4 mA to 20 mA DC current

Output range	Select one from 0 to 1, 0 to 10, 0 to 100, 0 to 1,000, 0 to 10,000, 0 to 100,000, 0 to 16, 0 to 256, 0 to 4,096, 0 to 40,960, 0 to 409,600
Load resistance	0 Ω to 500 Ω (including the resistance of the connection cable)
Output precision	±1%

Inputs/outputs

SERIAL	Connect a control equipment compatible with the internal interface
SENSOR	Connect one connectable particle sensor
SAMPLER	Connect a syringe sampler (KZ-30W1/W2)
ALARM	Alarm output terminals

Internal printer

Printout content	Measurement results, date and time, etc.
Printing method	Thermal printer, 48 mm print width
Printer paper	Thermal printer paper TP-08 or Lint-free thermal printer paper TP-10

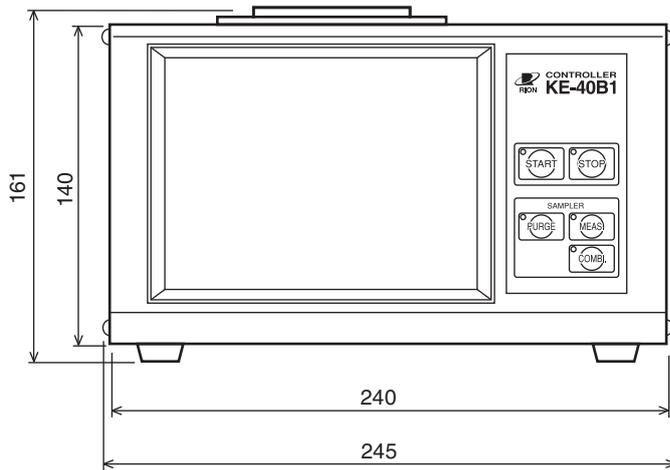| Memory functions	Measurement data or others are automatically saved to CF cards in text (TSV) form

| Power | 100 V to 240 V AC, 50/60 Hz |
| | Approx. 130 VA |

Environmental Requirements

    Operation Environments

| | Indoor Use Only |
| Altitude | Up to 2000 m |

    Supply Voltage Fluctuations

	100 V to 240 V AC ± 10%
Overvoltage Category	Ⅱ
Pollution Degree	2
Protection Class	Ⅰ

Environmental conditions for operation

> +5°C to +40°C, 85% RH max. (no condensation)
>
> Must be in the range 30% to 80% RH when using the printer. (no condensation)

Environmental conditions for storage

> −10°C to +50°C, 90% RH max. (no freezing and no condensation)

Dimensions	Approx. 161 mm (H) × 245 mm (W) × 180 mm (D) (maximum dimensions)
	Approx. 140 mm (H) × 240 mm (W) × 146 mm (D) (without protruding parts)
Weight	Approx. 3 kg

Supplied Accessories	Power cord	1
	Thermal printer paper TP-08	2
	CF dummy card	1
	Instruction manual	1
	Inspection certificate	1

Factory option	D/A converter interface	KE-40-S06

Options	Interface cable	CC-61A/CC-63A
	(For connection to DTE with 9-pin male D-sub connector)	
	Thermal printer paper	TP-08 (6 rolls set)
	Lint-free thermal printer paper	TP-10 (6 rolls set)
	Compact Flash card (formatted)	MC-25CF2: 256 MB
	RP monitor EVO (monitoring software)	K0505
	RP monitor Evo10 (monitoring software)	K1701
	Touch pen	
	Particle Size Setting Software	K1503

Rear view

ALARM

SAMPLER SERIAL SENSOR

POWER

Top view

CONTROLLER **KE-40B1**

START STOP

SAMPLER

PURGE MEAS

COMBI

Eject the CF card from the slot
after verifying the "CARD" icon
goes out.

161

140

240

245

Front view

146

180
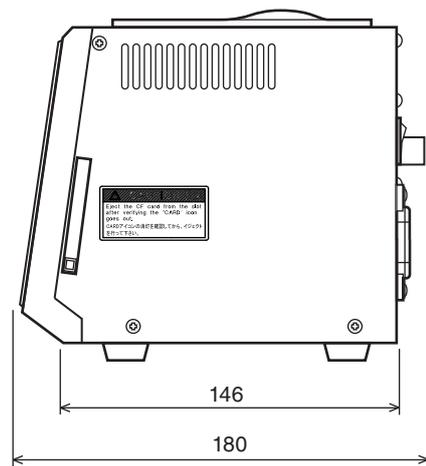
Right side view

Unit: mm

Dimensional Drawings