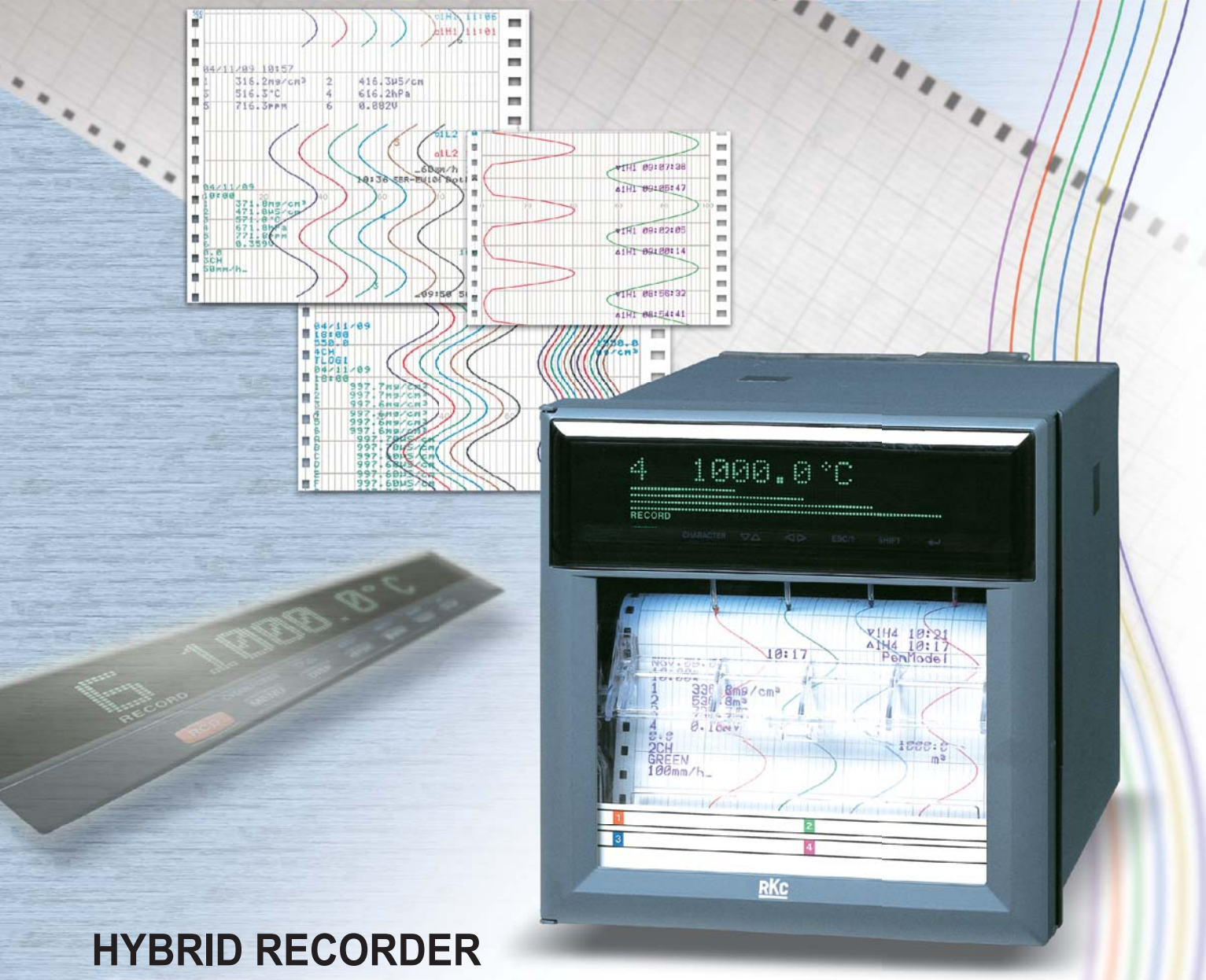
HYBRID RECORDER

SBR-EW100 Series

HYBRID RECORDER

RKC INSTRUMENT INC.



HYBRID RECORDER
SBR-EW100 Series

Easy to Use

- Large, VFD 101 x 16 full dot matrix display NEW
- Easily navigable interactive settings NEW
- Enables historical trend review during recording NEW
- Internal illumination (high intensity white LED) NEW

Compatible to Previous Model

- The felt-pen, plotter pen, cassette ribbon and chart paper are compatible to previous models (SBR-EY100 series).
- Rear terminal plate and depth size is same to previous models (SBR-EY100 series).

Multiple Functions Meet Variety of Needs

- Dot model achieves one second measurement intervals. NEW
- Universal input
- A wide range of input sensors
  Supports thirty-five types including PLII, PR40-20, NEW
  and NiNiMo (including options)
- Mathematical functions
  No. of channels: Pen models (8 ch), dot model (12 ch)
  Computation types: Offers general, logic, relational,
  and statistical computations.
  * Assign/analog record computed results to any channel.
- Ethernet or RS-422A/485 interfaces NEW

More easy to use and easy to read

Multi-Display (Displays a Variety of Screens) for On-Site Monitoring

1ch Digital + Bar graph display

Digital + Date and Time display

1ch Digital display

DI/DO display

Flag display

Alarm display

2ch Digital + Bar graph display

6ch Digital display

Navigational display Makes Setup a Snap

The instrument features a simple configuration, with Operation mode for normal use, and Setting mode for use during setup. In Operation mode, measured values, time, and alarms are updated, and lists are printed. In Setting mode, you can enter measuring ranges, alarm values, and other parameters. Also, Setting mode offers a navigational display that eases entry of settings.

Navigational display to support the settings
(Example: Range Setting)

Internal Illumination

By using a high intensity white LED and light diffusing rod for the internal illumination, the visibility of the chart section has been greatly increased.

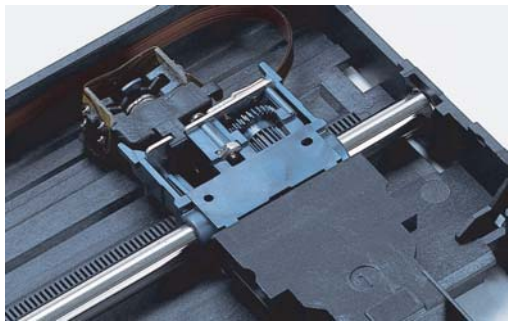
Chart Ejection Function

The chart cassette is equipped with a chart ejection function. You can write memos on the chart and check the historical trend during recording.

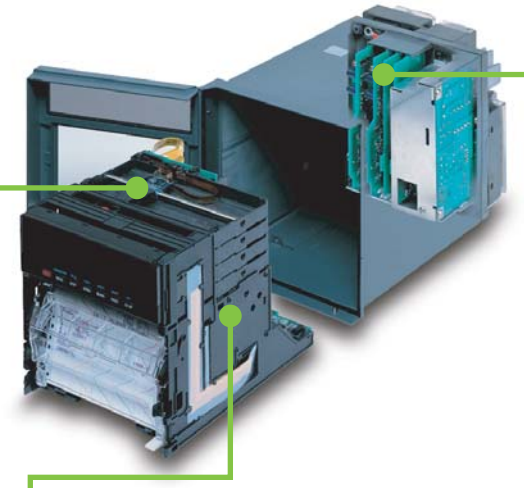
High Reliability and High Quality

Highly Precise & High Reliability of Actuators

The pen servo takes advantage of an ultra-small, rack-and-pinion stepping motor. By eliminating the drive belt, transfer-related loss load is reduced, allowing a smaller servo. The motor is controlled digitally, yielding reductions in power consumption. Also, the position of the pen is detected by an optical encoder.

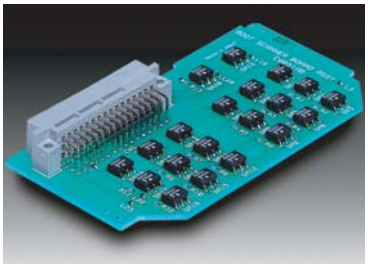


Servo Unit



Long Life & High Speed Scanning

For scanners that switch the input signal, high withstand voltage, low leakage current MOS FETs and high voltage output photocouplers have been combined into a high withstand voltage semiconductor relay offering high speed (6 points per second) scanning, longer scanner life, and noiseless operation. High integrated circuit achieve reducing power consumption, suppressing heat emissions, and increasing the lifespan of components.



Input signal switch circuit

Light Weight & Low Power Consumption

High integrated circuit and the new servo unit achieve high efficiencies and low heat emissions in all of the 1-, 2-, 3-, and 4-pen and 6-dot models while simultaneously limiting the weight to approximately 2.5 kg (6-dot model), and approximately 2.4 kg (4-pen model).

Compatible to previous model (SBR-EY100 Series)

The felt-pen, plotter pen, cassette ribbon and chart paper are compatible to previous models (SBR-EY100 series).

Rear terminal plate and depth size is same to previous models (SBR-EY100 series).

Specifications

Input

Number of inputs : 1,2,3,4 (pen), 6 (dot) points
Input signal
Universal input
TC : R, S, B, K, E, J, T, N, W5Re/W26Re, W3Re/W25Re, L, U
RTD : Pt100,JPt100
DCA : DC current (Using external shunt resistor)
DCV : DC voltage 20/60/200mV, 2/6/20/50V, 1 to 5V
DI : Digital input (Contact or DC Voltage, TTL level)
Measurement interval
Pen model : 0.125sec/channel
Dot model : 1sec/6dot or 2.5sec/6dot
Burnout
Available on TC and DCV (1 to 5V) range
•ON/OFF selectable (per channel)
•1-5V Burnout: less than 0.2V
Filter
Pen model: Signal damping
•ON/OFF selectable (per channel)
Time constant (2,5,10sec)
Dot model: Moving average
•ON/OFF selectable (per channel)
Moving average cycle (2 to 16)
Computation
Differential computation, Linear scaling
square root, Bias addition

Recording and Printing

Recording Method
Pen model : Disposable felt pens, Plotter pen
Dot model : 6 color wire dot.
Pen Offset Compensation : ON/OFF selectable (Pen model only)
Effective Recording Width : 100mm
Chart : Plain-paper Z-fold chart (16m)
Recording Period : Pen model: Continuous for each channel
Dot model: Max. 6 channel/10sec
Chart Speed
Pen model : 5 to 12000mm/h (82 increments)
Dot model : 1 to 1500mm/h (1mm step)
Chart Speed Change
speed 1, speed 2 change by remote control signals (option)
Recording Colors
Pen model : pen1=red, pen2=green, pen3=blue, pen4=violet
plotter pen=purple
Dot model : ch1=purple, ch2=red, ch3=green, ch4=blue
ch5=brown, ch6=black
• Color can be assigned to any channel.
Recording Format
Analog recording : Zone recording, Partial expanded recording
Digital printout : Channel number or TAG (Dot model only),
Alarm, Periodic printout or Report printout,
Message printout, Record start time,
Chart speed printout, List printout,
Manual printout, SET UP List printout

Display

Display method
VFD (101X16 dot matrix)
Display types
Multiple displays
Digital , bar, flag, DI/DO display etc. can be displayed.
•15 display types can be selected from approx. 80 display types.
Status display
Recording in progress (RECORD), Shared alarm (ALARM), Channel No. display of occurring alarm (1 2 3 4 or 1 2 3 4 5 6), Chart end display END) For the model with option (FAIL/chart end detection and output), Math (MATH)
Setting
SBR-EW100 settings display by interactive mode.In setting, navigator method is used.
Display updated interval can be selected from AUTO/MAN.
Bar graph display
Resolution: 1%
Measurement value: left/right (%) reference or center zero reference display.
• Each channel selectable.
Alarm: Alarm setting level display and flashing display of occurring alarm.
Display brightness setting
Display brightness level: 1 to 8

Alarm

Number of Levels
Up to 4 level for each channel.
Alarm type
High and low limits, differential high and low limits, high and low rate-of change limits and delay high and low Interval time of rate-of-change alarms:
The measurement interval times 1 to 15
Display
Set value is indicated as a point on the bar graph (only for bar graph display)
In case of an alarm : - For digital display : Alarm type indicator
□ - Shared alarm display
□ - Alarm occurring channel No. is displayed
□ - For bar graph display: Flashing point indicator

Power supply

Rated supply voltage : 100 to 240V AC (automatically selected)
Power supply range : 90 to 132V AC, 180 to 264V AC
Rated power frequency : 50Hz/60Hz (automatically selected)
Power consumption (In balance)

(approx.)

	100V AC	240V AC	Maximum
1 to 4 pen model	12VA	17VA	40VA
6 dot model	13VA	18VA	40VA

General Specification

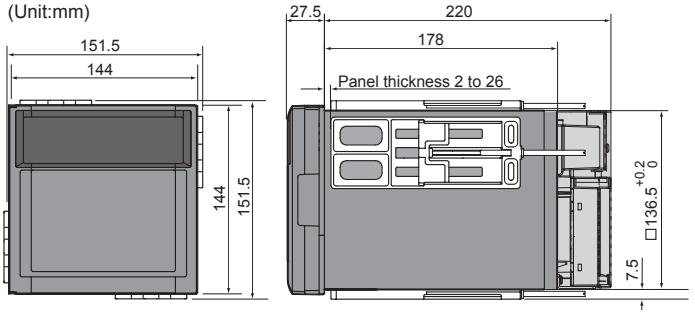
Ambient temperature and humidity
0 to 50°C [32 to 122°F] , 20 to 80% RH (at 5 to 40°C [41 to 104°F])
Memory backup
Lithium battery to save settings parameters
Approx. 10 years (23±2°C, 55±10% RH)
Settings protection function : Password method
Internal light : White LED
Operation position : 0° Frontwards: Within 30° from horizontal
Weight : 1 pen : Approx. 2.1kg, 2 pen : Approx. 2.2kg
3 pen : Approx. 2.3kg, 4 pen : Approx. 2.4kg
6 dot : Approx. 2.5kg

Optional Specification

Alarm output relay (/A1, /A2, /A3)
Number of output : 2, 4, 6 points
Relay contact rating : 250VDC/0.1A (resistance load),250VAC (50/60Hz) /3A
RS-422A/485 communication interface (/C3)
Measurement value and setting parameter read/write
Conforms to RS-422A and RS-485 standard
Ethernet (/C7)
Measurement value and setting parameter read/write
Transmission media : 10 Base-T
Protocol : TCP, IP, UDP, ICMP, ARP
FAIL/chart end detection and output (/F1)
In CPU error occurrence or the chart end, output relay is activated.
Relay contact rating : 250VDC/0.1A (resistance load), 250VAC (50/60Hz) /3A
Clamped input (/H2)
Non-glare door glass (/H3)
Non-glare door glass for front door
Computation function (/M1)
Number of computation channel : 8 channels (pen model)
12 channels (dot model)
Arithmetic operation, Square, Absolute, Common logarithm, Exponential, Power, Relational operator, Logic
Statistical computation : Statistical type : MAX, MIN, AVE, SUM, MAX-MIN
•Computation channel can be recorded
Cu10, Cu25 RTD input (/N1)
•Pt100 and JPt100 inputs can be used together.
3-wire isolated RTD (/N2)
A, B, b legs of RTD are isolated for dot model
Expansion input (/N3)
Following input types can be supported besides standard inputs.
TC : PR40-20, PLII, NiNiMo, W/WRe26, Type N (AWG14), Kp vs Au7Fe
RTD : Pt25, Pt50, Ni100 (SAMA), Ni100 (DIN), Ni120, J263*B, Cu53, Cu100
•Cu100 : α =0.00425 at 0°C
Remote control (/R1)
Below actions can be assigned to up to 5 points
Recording start/stop, Chart speed change, Message printout start, Manual printout start, Alarm ACK, Time set, Math start/stop, Math reset

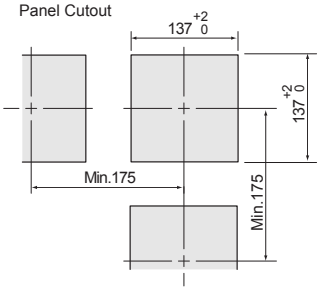
External Dimension

(Unit:mm)



Note : The SBR-EW100 should be mounted by only two brackets, either on the top and bottom

Panel Cutout



Model Codes

Model and Suffix Code		Option Code	Specifications
SBR-EW101			SBR-EW100 1 pen recorder
SBR-EW102			SBR-EW100 2 pen recorder
SBR-EW103			SBR-EW100 3 pen recorder
SBR-EW104			SBR-EW100 4 pen recorder
SBR-EW106			SBR-EW100 6 dot recorder
Language	-2		English, deg F & summer/winter time
Option		/A1	Alarm output relay (2 points)*1
		/A2	Alarm output relay (4 points)*1
		/A3	Alarm output relay (6 points)*1*2
		/C3	RS-422A/485 Digital communications*3
		/C7	Ethernet Digital communication*3
		/F1	FAIL,chart end detection and output*2
		/H2	Ctamped input terminal*4
		/H3	Non-glare door glass
		/W1	Computation function
		/N1	Cu10, Cu25 inputs
		/N2	3-wire isolated RTD*4*5
		/N3	Expansion input*6
		/R1	Remote control 5 points

*1 Only one of /A1, /A2, /A3 can be selected.
*2 /A3 and /F1 can not be specified together.
*3 /C3 and /C7 can not be specified together.
*4 /H2 and /N2 can not be specified together.
*5 /N2 can be specified only fot dot model.
*6 TC:PR40-20, PLII, NiNiMo, W/WRe26, Type N(AWG14), Kp vs Au7Fe
RTD:Pt25, Pt50, Ni100(SAMA), Ni100(DIN), Ni120, J263*B, Cu53, Cu100

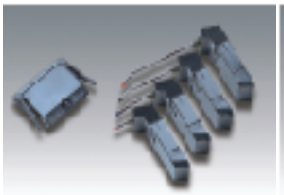
Accessories (Standard)

Name		1 pen	2 pen	3 pen	4 pen	6 dot
Z-fold chart		1 piece	1 piece	1 piece	1 piece	1 piece
6 color ribbon cassette		—	—	—	—	1 piece
Disposable felt-pen cartridge	Red	1 piece	1 piece	1 piece	1 piece	—
	Green	—	1 piece	1 piece	1 piece	—
	Blue	—	—	1 piece	1 piece	—
	Violet	—	—	—	1 piece	—
Plotter pen	Purple	1 piece	1 piece	1 piece	1 piece	—
Mounting brackets		2 piece	2 piece	2 piece	2 piece	2 piece

Accessories (Separates/Optional)

Name		Model Code	Sales unit	Specification
Z-fold chart		B-100EX	1	10 piece/unit
6 color ribbon cassette		B9901AX	1	
Disposable felt-pen cartridge	Red	B9902AM	1	3 piece/unit
	Green	B9902AN	1	3 piece/unit
	Blue	B9902AP	1	3 piece/unit
	Violet	B9902AQ	1	3 piece/unit
Plotter pen	Purple	B9902AR	1	
Mounting brackets		B9900BX	2	
Shunt resistor (for screw input terminal)		415920	1	250Ω±0.1%
		415921	1	100Ω±0.1%
		415922	1	10Ω±0.1%
Shunt resistor (for ctamped input terminal)		438920	1	250Ω±0.1%
		438921	1	100Ω±0.1%
		438922	1	10Ω±0.1%

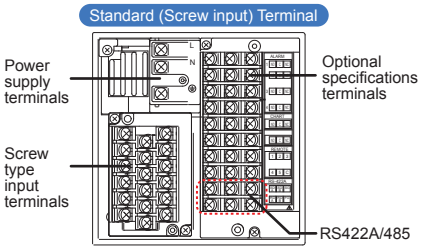
Plotter pen
Disposable felt-pen



6 color ribbon cassette

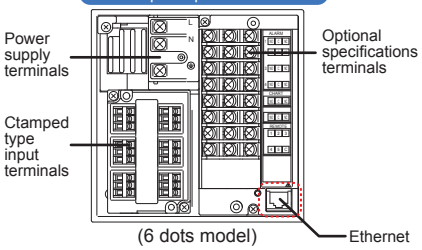
Rear Terminals

Standard (Screw input) Terminal



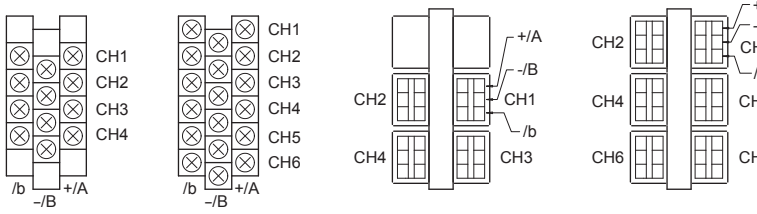
(6 dots model)
With RS-422A/485 (/C3)

Ctamped Input Terminal

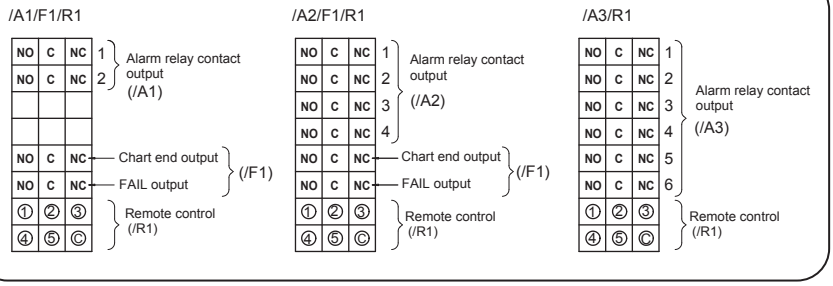


(6 dots model)
With Ethernet (/C7)

Input terminal



Optional specification terminal



Safety Warning

- Before operating this product, read the instruction manual carefully to avoid incorrect operation.
- This product is intended for use with industrial machines, test and measuring equipment. It is not designed for use with medical equipment.
- If it is possible that an accident may occur as a result of the failure of the product or some other abnormality, an appropriate independent protection device must be installed.

Caution for imitated products

As products imitating our product now appear on the market, be careful that you don't purchase these imitated products. We will not warrant such products nor bear the responsibility for any damage and/or accident caused by their use.

RKC INSTRUMENT INC.
(RIKA KOGYO CO.,LTD)

HEAD OFFICE : 16-6, KUGAHARA 5 CHOME OHTA-KU TOKYO 146-8515 JAPAN
PHONE : 03-3751-9799 (+81 3 3751 9799)
Email : info@rkcinst.co.jp
FAX : 03-3751-8585 (+81 3 3751 8585)
http://www.rkcinst.com/

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