

# SR100B 100 mm Process Recorder

SR100B – power without complexity



**3- or 6-trace recording on a 100 mm chart**  
– common time base for instant process comparison

**High clarity liquid crystal display**  
– for process value, units and channel tags

**Universal process inputs**  
– accepts thermocouples with ACJC, RTDs, mA, mV and V

**Available preconfigured to your requirement**  
– make connections and it's ready to go!

**2-wire transmitter power supply as standard**  
– for up to three, loop-powered transmitters

**Rugged design IP65/NEMA3, washdown protection**  
– reliability in the harshest environments

**Six relay outputs**  
– for High/Low process alarms

**PC Configuration**  
– for quick and easy setup on site



**SR100B**  
100 mm Process Recorder

**SR100B**

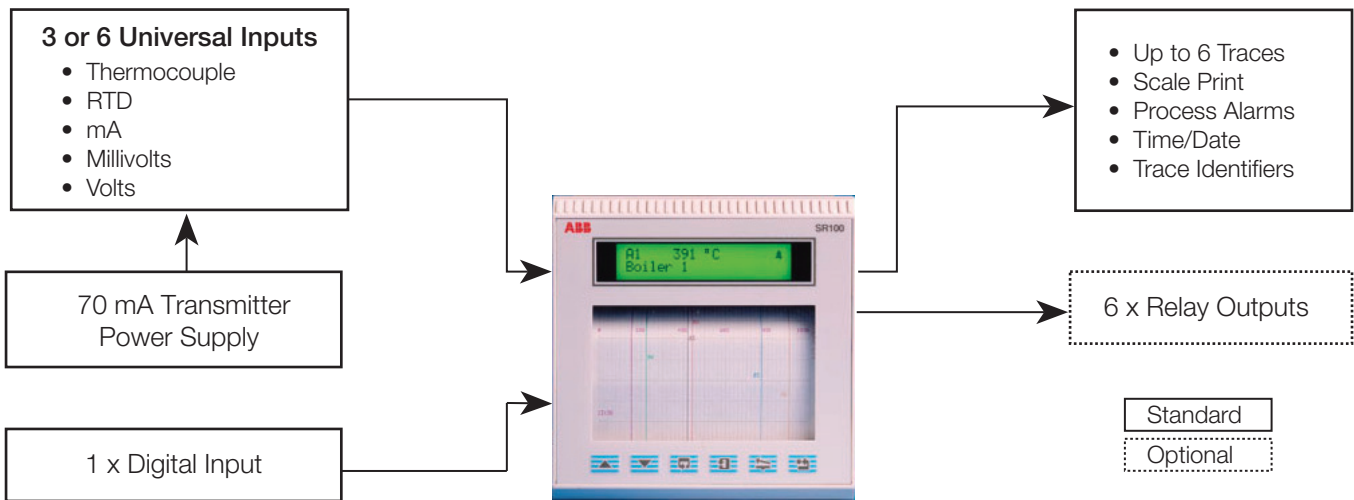
The SR100B provides accurate and reliable recording of 3 or 6 process signals on a 100 mm wide chart. In-built text printing capabilities give clear annotation on the chart of time, date, scales and channel identifiers.

A clear view of process status is provided by the liquid crystal display (LCD) display and up-to-the-minute recording can be quickly examined by means of the 'Easy View' facility. The recorder is designed for panel mounting and provides complete dust and water protection on the front face, making it suitable for use in harsh environments.

The SR100B can be supplied preconfigured for the signal types and ranges you specify when ordering. All configurations can be adjusted on site by means of the front panel keys or a PC Configurator.



**Process Connections**



## Operation

During normal operation the display cycles through each channel in sequence showing value, units and channel tags.

Clear text prompts on the display assist the operator in accessing functions such as chart reload and alarm acknowledge. Tactile membrane keys on the front of the recorder are used to access these functions.

Password protection prevents unauthorized access to the recorder's configuration.

Quickly-fitted pen cartridges and an easily-removable chart cassette ensure simple and efficient pen and chart replacement.

## Set-up

The SR100B can be easily set up to match your process in either of two ways:

**Keypad** – for small changes the simplest method is by means of the keypad on the front of the unit. Entry of the correct password gives access to the recorder's configuration. A simple menu structure with clear text descriptions provides an intuitive approach to the recorder set-up.

**PC Configurator** – the fastest way to set up SR100B recorders is by means of the PC Configurator software. This Windows™-based package provides a simple 'point-and-click' approach to generating a full recorder configuration off-line. The completed configuration can be printed out or saved onto disk before being downloaded to the recorder.

An interface cable is used to provide the connection between the PC's serial port and the configuration port on the recorder.



## Built-in Quality

The SR100B is designed, manufactured and tested to the highest quality standards, including ISO 9001, CSA and UL. We also have environmental accreditation to ISO 14001.

## Recording

The SR100B's high-speed multi-point printing system updates all 6 traces in 800 ms. This system produces continuous lines on the chart for speeds of up to 500 mm/hr.

The printing sequence is intelligently managed by the recorder's control system to give priority to fast-changing signals or events, ensuring the most comprehensive process record is traced on the chart.

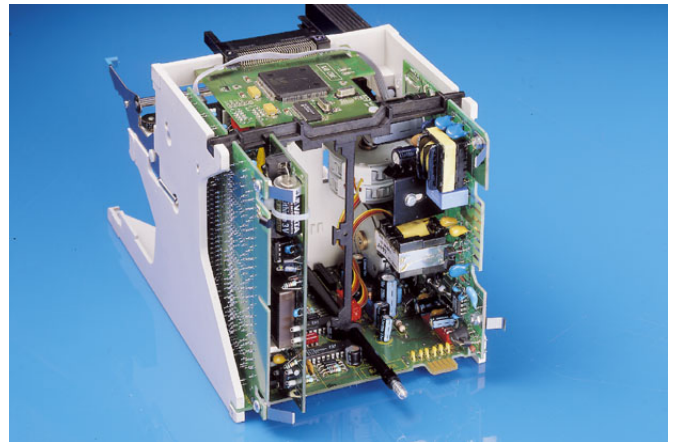
The SR100B supports text printing to provide annotation on the chart. In addition to the time, date, channel identity and chart speed, the recorder can print scales for each channel and alarm identification.

The 'Easy-view' facility enables the user to see the latest recordings at the push of a button.

## Option Modules

All recorders are complete with 3 or 6 universal inputs for analog process signals plus a transmitter power supply for up to three 4 to 20 mA devices and a digital input.

The capabilities of your recorder can be extended further by the addition of relay option modules for 3 or 6 relays.



## Innovative Design

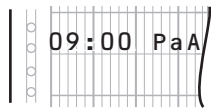
Mechanical and electrical component count is minimized for improved performance and reliability.

An advanced analog/digital design ensures long term stability and allows range changes to be made without the need for recalibration.

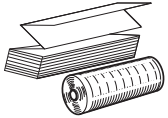
Exceptional immunity to RF interference, electrical noise and line dropout (brown-out) conditions, together with the IP65 (NEMA 3) rated front face, ensure reliable operation – even in harsh industrial environments.

Long life, plug-in print cartridges with 25 m roll or 12 m fanfold charts (both with quick-loading cassettes) together with speeds from 1 to 1500 mm/hr ensure minimal operating costs.

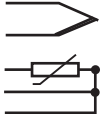
## Summary Specification



The recorder prints time, date and chart speed automatically at regular intervals. Channel scales and trace identifiers can also be printed on the chart.



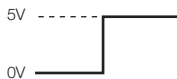
Roll or Fanfold charts with a recording width of 100 mm are available with 30, 40, 50, 60, 70 and 75 divisions. Chart speed is fully adjustable between 1 and 1500 mm/hour.



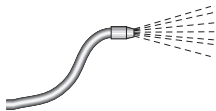
Universal process inputs support all standard types of thermocouple, RTD, 4 to 20 mA signals and V, or mV, signals. 2-wire transmitter power supply is fitted as standard for up to 3 loop-powered transmitters.



Up to 12 process alarms can be set up within the recorder. Alarm status can be printed on the chart and the alarms used to operate any of the 6 relay outputs.

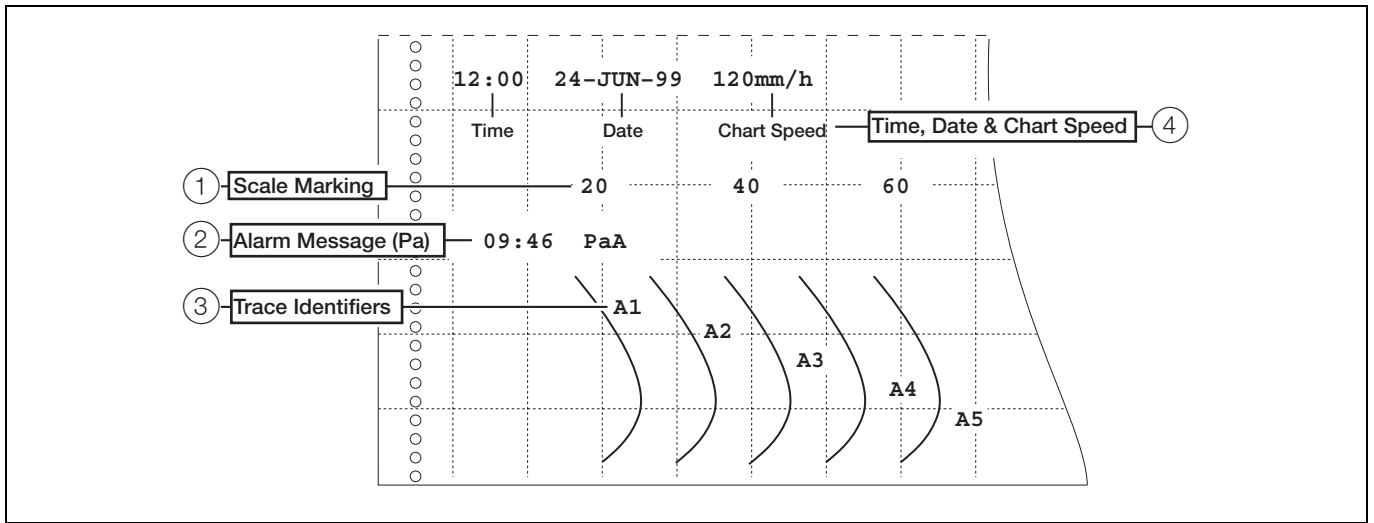


A digital input is provided as standard for remote changing of chart speed and global alarm acknowledgement.



The IP65 front face and door seals protect panel-mounted recorders against water jets from most cleaning hoses and dust

## Chart Annotation



- ① **Scale Marking** – one scale per trace, printed across the width of the zone, at intervals of 20 to 240 mm.
- ② **Alarm Message**  

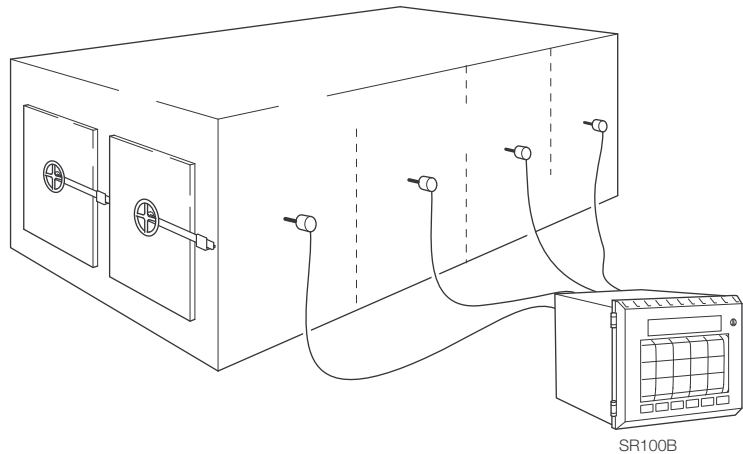
09:46	PaA
Time	Assigned
Activated	Channel
- ③ **Trace Identifiers** – one identifier per trace.
- ④ **Time, Date & Chart Speed** – printed on power-up and at 240 mm intervals (approx.). The time is printed every 60 mm (approx.).

## Applications

### Temperature Recording

Recording of temperature is common in a wide range of industries from Aerospace, Car Component, Food, Chemical and Kiln / Ovens using both direct-connected thermocouples and RTD or 2-wire field-mounted transmitters.

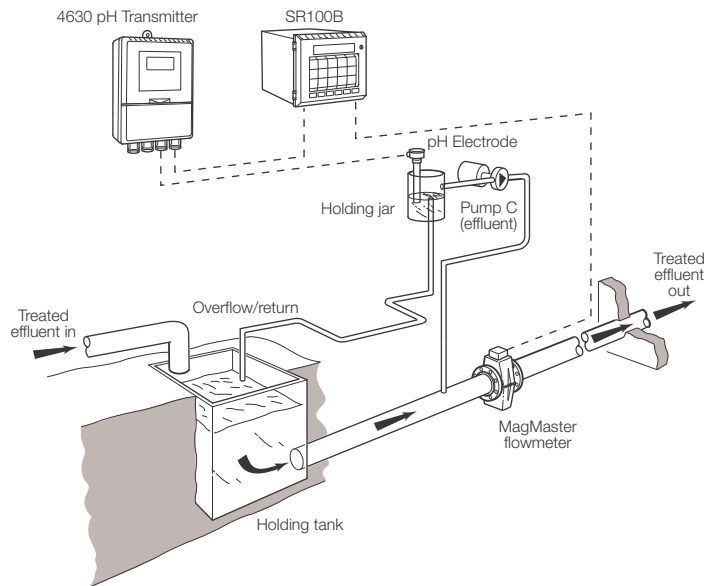
The SR100B can accept direct connection to all standard thermocouples, Pt100 and 4 to 20 mA transmitters, and record on up to 6 channels.



### Waste Monitoring and Control

The discharge of effluent into rivers and streams is very tightly controlled and the requirement to be able to prove that the regulations have been met is extremely important.

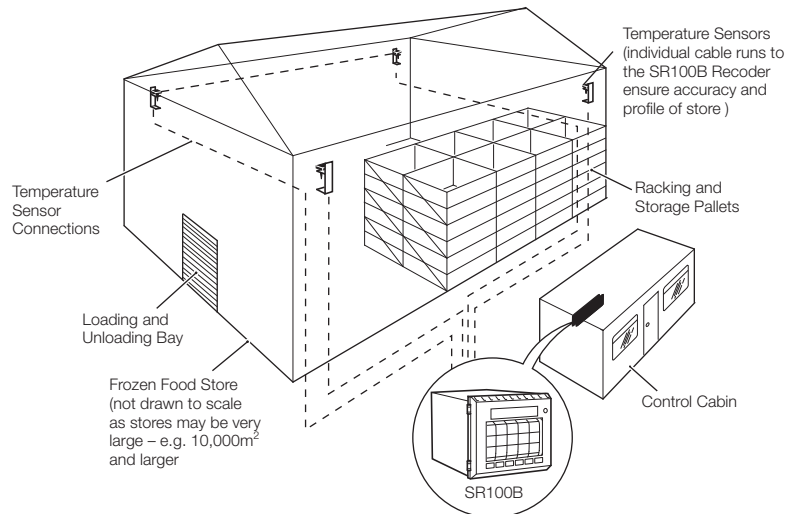
The simplest way is to use a chart recorder connected to the pH transmitter in the discharge line, giving the added advantage of monitoring flow rates for records of discharges.



### Temperature Monitoring and Alarms

The simplest and easiest way to do this is with the SR100B strip chart recorder, that can take up to 6 inputs from RTDs spread across a cold store or a number of food preparation areas.

At a chart speed of 20 mm/hour the unit provides recording for one month, as well as alarm functions, when fitted with relay output modules.





## Analog Inputs

### Number

3 or 6 Standard Analog Inputs

### Input sampling rate

180 ms per channel

### Type

Universally configurable to provide:

- Thermocouple (THC)
- Resistance thermometer (RTD)
- Millivolt
- Current
- DC voltage
- Resistance

### Linearizer functions

Programmable for all inputs including:  $\sqrt{\quad}$ ,  $x^{3/2}$ ,  $x^{5/2}$ ,  
THC types B, E, J, K, R, S, T, L, N or Pt100\*

### Broken sensor detection

Programmable UP/DOWN scale or NONE

RTD short / open circuit detection

### Cold junction compensation

Automatic CJC incorporated as standard

### Input impedance

Current	10 $\Omega$
DC voltage	500 k $\Omega$
mV & THC	>10 M $\Omega$

### Transmitter power supply

70 mA max. powers 3 loops, fitted as standard

## Input Isolation

### Standard Input Module

Analog channel-to-channel	12 V (0 V with RTDs)
Input to ground	500 V DC dielectric strength
Common mode	>140 dB at 50 / 60Hz with 500 $\Omega$ imbalance resistance
Series mode	>60 dB at 50 / 60 Hz
Filtering	0 to 60 s 'Smart' digital filter.

## Input Temperature Limits

THC / RTD Type	°C			°F		
	Min.	Max.	Min. Span	Min.	Max.	Min. Span
<b>B</b>	-18	1800	710	0	3272	1278
<b>E</b>	-100	900	45	-148	1652	81
<b>J</b>	-100	900	50	-148	1652	90
<b>K</b>	-100	1300	65	-148	2372	117
<b>L</b>	-100	900	50	-148	1652	90
<b>N</b>	-200	1300	90	-328	2372	162
<b>R &amp; S</b>	-18	1700	320	0	3092	576
<b>T</b>	-250	300	60	-418	572	108

Performance accuracy is not guaranteed below 400 °C (752 °F) for types B, R and S thermocouples.

Min. span below zero: Type T 70° C / 126 °F  
Type N 105 °C / 189 °F

THC standards DIN 43710 (IEC 584)

<b>RTD</b>	-200	600	25	-328	1112	45
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3-wire platinum, 100  $\Omega$  per DIN 43760 standard (IEC751), with range of 0 to 400  $\Omega$ .

RTD standards DIN 43760 (IEC 751)

## Electrical Limits

Input Type	Min. Value	Max. Value	Min. Span
Millivolts	-2000	2000	2.5
Volts	-20	20	0.25
Milliamps	-100	100	0.25
Resistance	0	8000	10





## SR100B

100 mm Process Recorder

### Accuracy

#### Pen

Resolution 0.2 % of span

#### Display

Intrinsic error for reference conditions, 20 °C

mV Inputs	0.1 % of reading $\pm 10 \mu\text{V}$
THC Inputs	as mV equivalent plus linearizer error
CJC	$<0.05 \text{ }^\circ\text{C} / \text{ }^\circ\text{C}$ change in ambient
mA, V Inputs	0.2 % of reading or $\pm 2 \mu\text{A}$
RTD Inputs	$<\pm 0.2 \%$ of reading or $\pm 0.5 \text{ }^\circ\text{C}$
Channel-to-Channel Offset	$<20 \mu\text{V}$ or $<0.025 \Omega$ without using individual channel offset correction
Engineering Range	-999 to +9999
Display Resolution	for spans $>4000 - \pm 2$ digits for spans $<4000 - \pm 1$ digit
Long Term Drift	$<0.01 \%$ reading, or $<\pm 5 \mu\text{V}$ annually

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### Physical

#### Size

144 x 144 x 230 mm (depth behind panel)  
(5.67 x 5.67 x 9.05 in.)

#### Weight

3.3 kg (7.25 lbs.) approx.

#### Panel cut-out

138 x 138 mm (5.43 x 5.43 in.)

#### Case material

Stainless steel

#### Door material

Glass-filled polycarbonate

#### Window material

Polycarbonate

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### Electrical

#### Power supply

85 to 265 V 50 / 60 Hz  
or 10 to 30 V DC  
or 24 V AC

#### Power consumption

25 VA max.  
20 W DC (typical)

#### Electrical safety

EN61010-1  
CE marked instruments meet EU regulations

#### Electrical connections

Screw terminals

### Environmental

#### Operating limits

5 to 50 °C (41 to 122 °F), 95 %RH non-condensing  
80 %RH for chart

#### Temperature stability

0.02 % of reading / °C, or  $2 \mu\text{V} / \text{ }^\circ\text{C}$  whichever is greater

#### Protection

Front face IP65 (NEMA 3)  
Rear of instrument IP20

#### Line interruption

$<80$  ms loss, no effect  
 $>80$  ms loss, auto-reset and restart  
IEC Part IV level 3

#### Electromagnetic capability

EN 50081-2  
EN50082-2  
CE Marked

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### EMC

#### Design & manufacturing standards

CSA General Safety Approved  
UL General Safety Approved

#### Emissions and Immunity

Meets requirements of IEC 61326 for an Industrial Environment

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### Option Modules

Up to 2 modules can be fitted

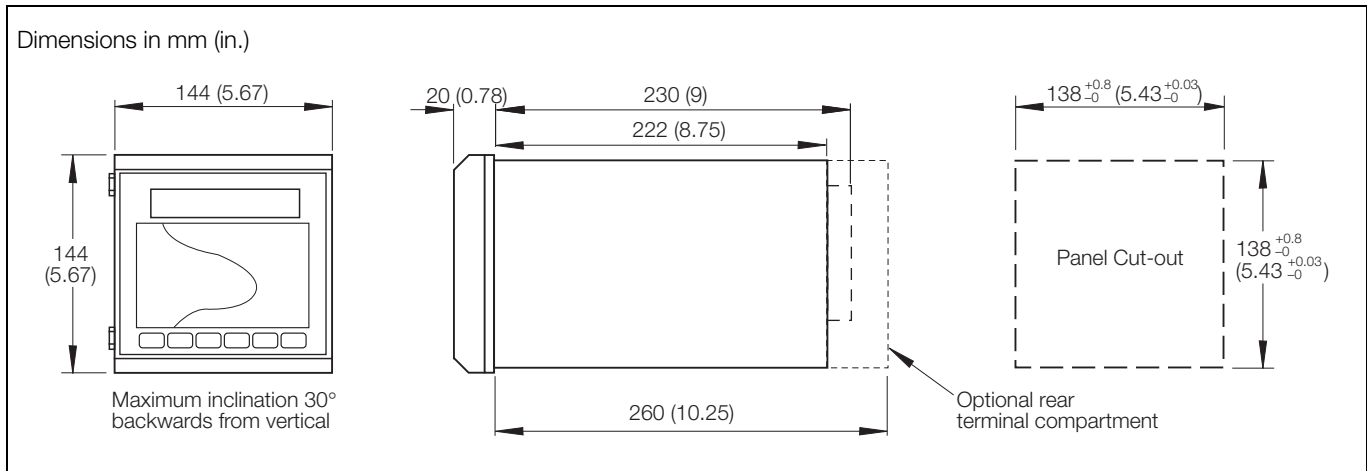
#### Relay output module

Three relays per module

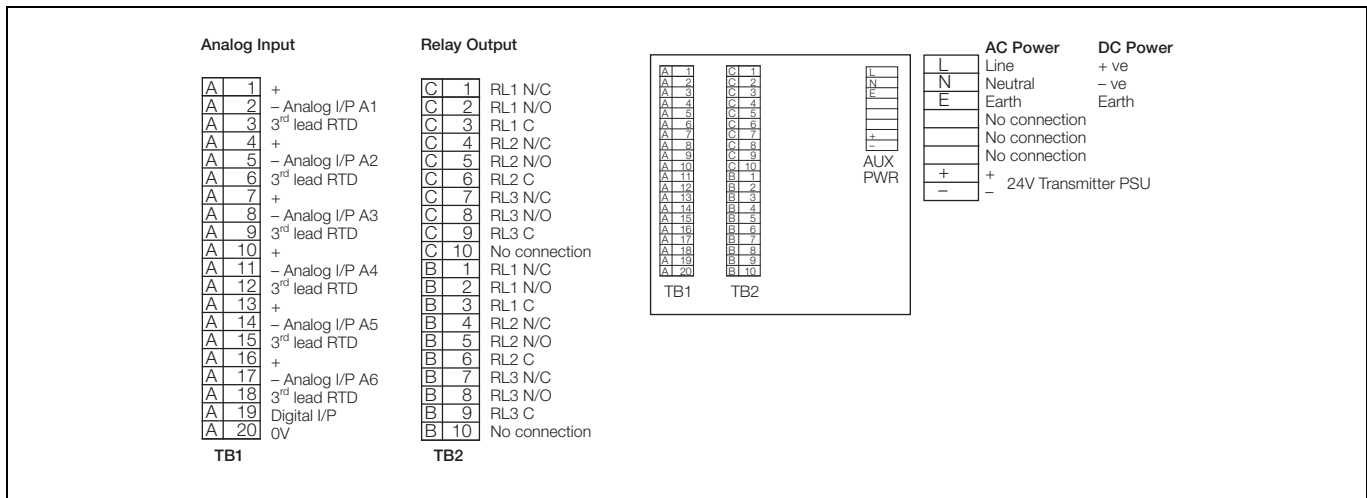
Type	single pole changeover
Rating	250 V AC 5 A (non-inductive load) 250 V DC 25 W maximum



## Overall Dimensions



## Electrical Connections



## Ordering Information

<b>SR100B 100 mm Process Recorder</b>	SR10	X	B/	X	0/	X	X	0	0	0	0/	X	X	X	XXXX
<b>Number of Traces, Input Channels and Dielectric Strengths</b>															
3 traces (12 V channel-to-channel)		3													
6 traces (12 V channel-to-channel)		6													
<b>Build</b>															
ABB Standard				B											
<b>Option Module B</b>															
No additional outputs								0							
3 relay outputs								R							
<b>Option Module C</b>															
No additional outputs								0							
3 relay outputs								R							
<b>Case &amp; Door Type</b>															
Standard case														1	
Standard case + terminal cover														2	
<b>Chart Drive</b>															
Roll chart															1
Fanfold chart*															2
<b>Power Supply</b>															
85 to 265 V AC															1
10 to 30 V DC															3
24 V AC															4
<b>Programming / Special Features</b>															
Configured to factory standard															ST
Custom configuration (customer to complete and supply SR100B custom configuration sheet – <a href="#">INF09/011</a> )															CM
Special features															SPXX
Engineered configuration (customer to supply configuration details required)															ENG

\*Easy View features available only with Roll Chart option.

## Accessories

PC Configuration Kit C100/0700

After-sales Engineered Configuration Service ENG/REC

## Acknowledgements and Trademarks

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