Data Sheet
SS/CR100_3

100mm Process Indicator Recorder

CR100

- **One or two pen continuous line 100mm recorder**
  – universal input for thermocouple, RTD, mV, mA and V
- **Clear, 5-digit LED display**
  – high visibility, wide viewing angle
- **Two (5A) alarm relays as standard**
  – allocated to individual channels or common to both
- **Isolated analog retransmission**
  – easy connection to management system
- **Two digital inputs**
  – chart start/stop, change chart speed or remote alarm acknowledge
- **Configuration from front fascia or via PC**
  – simple configuration setup and storage procedure
- **Transmitter power supply**
  – power each loop from the standard unit, no extras needed
- **IP65/NEMA3 protection**
  – reliability in the harshest environments

CR100
– combination of a high resolution process indicator and a compact chart recorder

CR100

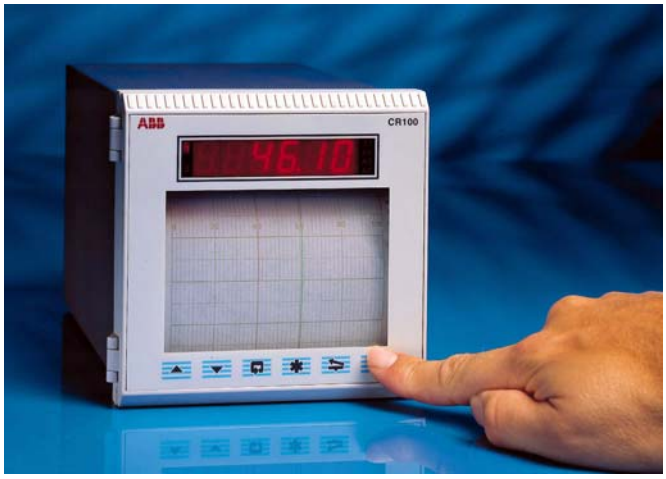
The CR100 is a one or two pen continuous-line 100mm strip chart recorder with a number of features included as standard:

- Two alarm relays
- Isolated analog retransmission
- Two digital inputs
- Transmitter power supply.

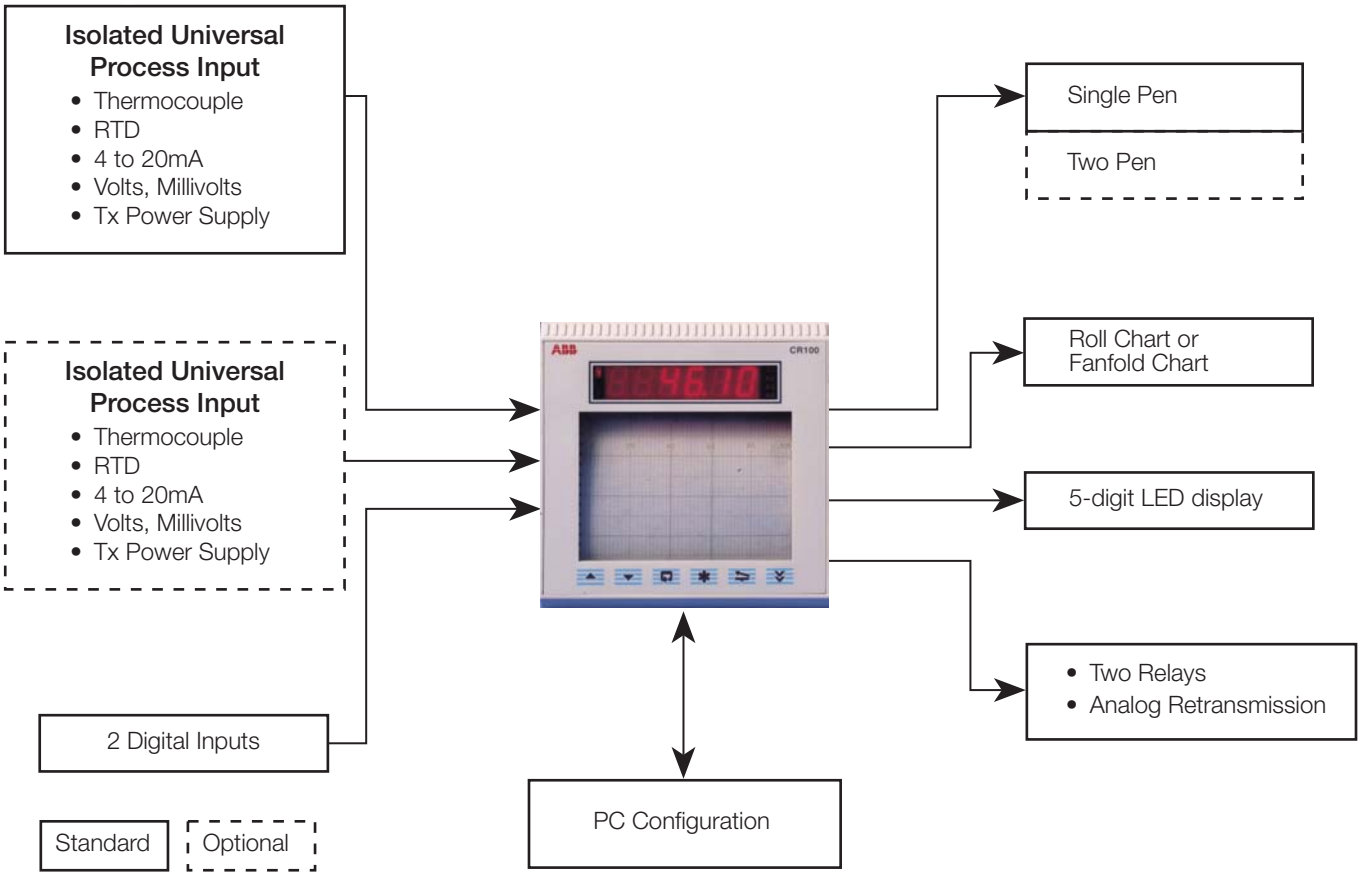
These inbuilt features make the CR100 an extremely versatile chart recorder.

It has a bright, 5-digit LED display giving clear indication of the process. Configuration using the front keys is very easy. The CR100 can also be configured using the PC Configuration software increasing the flexibility and reducing setup time.

With a IP65/NEMA3 front fascia the CR100 is suitable for use in harsh industrial environments.



Process Connections



Clear Display and Simple Controls

Process values and alarm messages are shown on the high-resolution 5-digit LED display which has been designed for maximum visibility. On the two-pen version the display toggles between input one and input two.

Beneath the display are 6 keys (increment, decrement, scroll, multifunction, pen lift and chart speed selection) that are used to operate and configure the recorder.

The instrument is equipped with four user-defined alarms, each with its own LED which is lit when an alarm condition exists.

Extras Built-in as Standard

To meet the majority of process needs, two relays are included in the standard build. These can be allocated as one per channel, both on one channel or common to both channels.

Further flexibility is provided by an analog retransmission signal and two digital inputs. The digital inputs can be used for remote acknowledgement of alarms, starting and stopping the chart or for changing the chart speed.

All this as standard makes the CR100 an extremely versatile recorder.

Isolated Universal Analog Inputs

Both of the analog inputs are universal, galvanically isolated and accept direct connection from all standard thermocouple, RTD, mA, mV and voltage sources.

Using the PC Configuration software, non-standard ranges as low as 5mV are also possible.

The recorder also has a 2-wire transmitter power supply suitable for powering each loop.

Easy Setup

The CR100 can be configured in one of two ways:

Front face keys
The front face keys are used to configure the instrument via a security code protected configuration menu.

PC Configurator
The standard equipment PC configurator port is used to connect a PC equipped with the Windows™-based PC Configurator software making setup a point-and-click operation. Settings can also be saved on the PC and copied to other recorders making setup of multiple instruments quick and simple.

Rugged Enclosure Design

The case has been designed to withstand operation in harsh industrial environments with IP65/NEMA3 front face protection as standard. This makes the instrument ideal for use in food applications and hosedown areas.

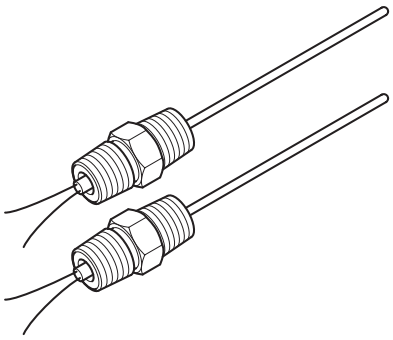
Applications

Temperature Monitoring

The compact design of the CR100 makes it ideal as a local temperature monitor and alarm.

Inbuilt CJ compensation enables the direct connection of all standard thermocouples. For precision measurement Pt100 resistance thermometers can be connected directly via the universal input, thus ensuring low installation costs.

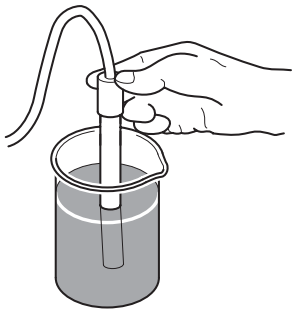
The clear LED display provides highly visible indication and numbered alarm LEDs provide instant process status verification.



Environmental/Laboratory Monitoring

The unbroken line on the chart provided by the CR100 is ideal for continuous gas or liquid environmental applications.

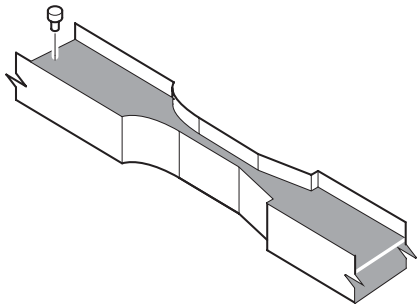
Other uses include batch monitoring of laboratory tests, or test chambers, to verify the test results and the provision of alarm signals to indicate if a test exceeds preset limits.



Discharge Monitoring

With universal inputs the CR100 provides the opportunity for local monitoring and alarms for the measurement of parameters such as level, flow and pH.

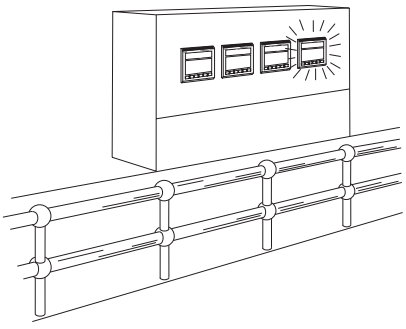
The retransmission also provides the ability to retransmit this signal to a process monitor so readings can be integrated into a plant data acquisition scheme.



Indicating Recorder

Ideal for small units or operator panels providing clear, high resolution digital indication of process variables.

The cost-effective price of the CR100 allows individual indication,with sensitivity down to 10µV, or 0.2°C (0.11°F), and a secure hard copy record for traceability of the process.



Specification

Summary

1 or 2 continuous lines

100mm wide roll or fanfold chart

Fully user-programmable

IP65/NEMA3 protection

Recording

Measuring channels

1 or 2

Colors

Single continuous line, Red

Two continuous lines, Pen 1 – Red, Pen 2 – Green

Chart

7.5 m fanfold or 15m roll

Quick-load cassette

Standard chart graduation 50 divisions

Chart speed

Configurable in 1mm steps between 1mm and 1500mm/hr

Logic or switch selectable at two configured speeds

Pen response time

4s, 10 to 90%, typical

Operation

Display

High intensity 5-digit LED display (14mm high)

Configuration

User-defined via front panel or Windows-based PC configurator

Alarms

Number	4 user-defined
Types	High/Low process High/Low latch
Hysteresis	Programmable level

Accuracy

Pen

Resolution	0.2% of span

Display

Display range	–9999 to +99999
Display resolution	±1digit

Digital Inputs

Number	2
Type	Volt-free contacts
Minimum pulse	250ms

Outputs

Retransmission

Analog configuration in the range of 4 to 20mA

Max. load	15V (750Ω at 20mA)
Accuracy	≤0.25% of span
Isolation	500V DC from inputs

Assignable to any one analog input

Relay Outputs

2 relays (SPDT)	5A at 115/230V AC Assignable to alarms

Physical

Size

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

Weight

3.3kg (7 lbs) approx.

Panel cut-out

138mm (5.43 in.) x 138mm (5.43 in.)

Case material

Sheet steel case, stove enamel painted

Door material

Glass-filled polycarbonate

Window material

Polycarbonate

Electrical

Power supply

85 to 265V 50/60Hz

Power consumption

36W max.

Electrical safety

EN61010-1

CE marked instruments meet EU regulations

CSA (optional)

Electrical connections

Screw terminals

Environmental

Operating limits

0 to 50°C (32 to 122°F)

95% RH non-condensing

80% RH for chart

Temperature stability

0.02% of reading or 2µV/°C whichever is the greater

Protection

Front face	IP65 NEMA3
Rear of instrument	IP20

Line interruption

<80ms loss, no effect

>80ms loss, auto reset and restart

EMC

Emissions and Immunity

Meets requirements of IEC 61326 for an Industrial Environment

Design and manufacturing standards

Designed to meet CSA requirements

CE mark

Analog Inputs

Number

1 or 2 isolated analog inputs

Input sampling rate

250ms

Input Type

Universally configurable to provide:

Thermocouple (THC)*

Resistance thermometer (RTD)

Millivolt

Current

DC voltage

*2nd input can be THC, but only if 1st input also THC

Linearizer functions

Programmable for:	Square root THC types B, E, J, K, N, R, S, T or Pt100
Filter time	Adjustable up to 60s

Broken sensor protection

Upscale drive on THC and RTD

Downscale drive on mA and voltage

Cold junction compensation (CJC)

Automatic CJC incorporated as standard

Accuracy <0.05% °C/°C change in ambient

Input impedance

mA	100Ω
mV, V	>10MΩ

Transmitter power supplies

Two isolated supplies 25mA max. each

Input isolation

Analog channel-to-channel isolation	500V DC
Input to ground	700V DC
Common mode	>120dB at 50/60Hz with 300Ω imbalance resistance
Series mode	>60dB at 50/60Hz

3-lead RTD

Max. lead resistance 10Ω

...Specification

Standard Analog Input Ranges

Thermocouple	Maximum Range °C	Maximum Range °F	Accuracy (% of reading)*
B	–18 to 1800	0 to 3270	0.25% or ±2°C (above 200°C)
E	–100 to 900	–140 to 1650	0.25% or ±0.5°C
J	–100 to 900	–140 to 1650	0.25% or ±0.5°C
K	–100 to 1300	–140 to 2350	0.25% or ±0.5°C
N	–200 to 1300	–325 to 2350	0.25% or ±0.5°C
R	–18 to 1700	0 to 3000	0.25% or ±1.0°C (above 300°C)
S	–18 to 1700	0 to 3000	0.25% or ±0.5°C (above 200°C)
T	–250 to 300	–400 to 550	0.25% or ±0.5°C

* Performance accuracy is not guaranteed below 400ºC (752ºF) for B, R and S thermocouples

Min. span below zero Type T 70ºC (126ºF)
Type N 105ºC (189ºF)

THC standards DIN 43710 IEC 584

RTD	Maximum Range °C	Maximum Range °F	Accuracy (% of reading)**
Pt100	–200 to 600	–325 to 1100	0.25% or ±0.5°C

** RTD, 3-wire platinum, 100Ω per DIN43760 standard (IEC751), with range of 0 to 400Ω

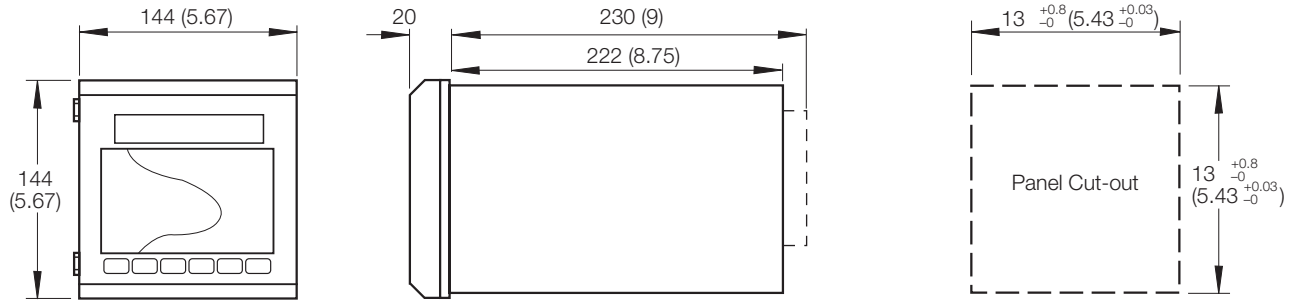
Linear Inputs	Range	Accuracy (% of reading)
Milliamps	0 to 20	0.25% or ±2µA
Milliamps	4 to 20	0.25% or ±2µA
Volts	0 to 5	0.25% or ±2mV
Volts	1 to 5	0.25% or ±2mV
Millivolts	0 to 50	0.25% or ±20µV

Square Root Input	Range	Accuracy (% of reading)***
Milliamps	4 to 20	0.25% or ±2µA

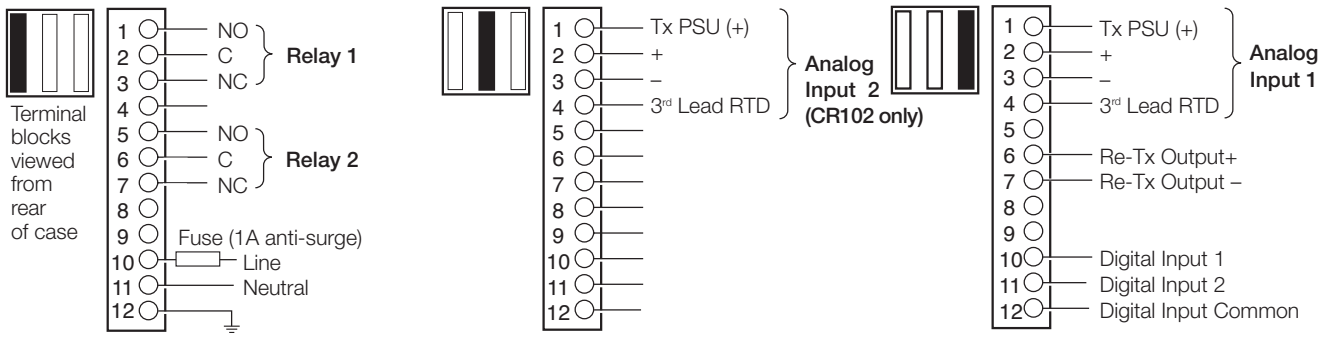
*** Below input of 4.64mA (20% flow) the input is linear

Overall Dimensions

Dimensions in mm (in.)



Electrical Connections



Ordering Information

CR100 100mm Process Indicator Recorder	CR10	X/	X	X	X	X/	X X X X
Number of Pens							
Single pen		1					
Two pens		2					
Build							
ABB Standard			B				
CSA approval (pending)			C				
Door							
Without lock				0			
Chart Drive							
Roll chart					1		
Fan-fold chart					2		
Power Supply							
85 to 265V AC						1	
Programming/Special Features							
Configured to factory standard							S T D
Configured to customer requirements							C U S
Special features							S P X X

Accessories

PC Configurator kit (part no. C100/0700)

Standard Chart Selection

Range	Roll Chart Part No.		Fanfold Chart Part No.	
	International	North America	International	North America
–50/+50	P100L/7477G	KPC100-1110	P100L/7477X	KPC100-8042
0/14	P100L/17463G	KPC100-1047	P100L/17463X	KPC100-8032
0/50	P100L/7401G	KPC100-1032	P100L/7401X	–
0/100*	P100L/7400G	KPC100-1037	P100L/7400X	KPC100-8034
0/150	P100L/7414G	KPC100-1039	P100L/7414X	KPC100-8050
0/200	P100L/7420G	KPC100-1040	P100L/7420X	KPC100-8051
0/500	P100L/7010G	KPC100-1043	P100L/7010X	KPC100-8058
0/800	P100L/17446G	KPC100-1045	P100L/17446X	KPC100-8064
0/1000	P100L/7476G	KPC100-1072	P100L/7476X	KPC100-8037

*Supplied as standard

Note. Other ranges may be available on request.

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