



Cert. No. LRQ 0963008

ISO 9001

BC1100 TDS Controller

- Compact conductivity/blowdown controller
- DIN rail or chassis mounted
- Wide conductivity range
- 115 V or 230 V supply

Description

The Spirax Sarco BC1100 controller is part of an integrated range of boiler house equipment, designed for DIN rail or chassis mounting. The controller is used in conjunction with a Spirax Sarco conductivity sensor and blowdown valve to monitor and control the concentration of total dissolved solids (TDS) in steam boilers.

This is achieved by opening the blowdown valve periodically to purge the system and allow a sample of boiler water to pass the sensor.

The electrical conductivity of this sample is compared with the set point selected on the controller front panel.

If the conductivity is lower than the set point, the controller allows the blowdown valve to close.

If the conductivity is higher than the set point, the valve remains open, allowing the contaminated boiler water to be replaced by clean make-up water.

The valve closes when the conductivity of the boiler water drops below the set point.

The BC1100 has a set point potentiometer, and coarse and fine calibration potentiometers on the front panel.

A green LED indicates that the controller is operating, and that the conductivity is below the set point.

An amber LED indicates that the conductivity is above the set point.

A purge button is provided to open the blowdown valve manually, and a second amber LED indicates that the blowdown valve is open.

Voltage, range, and output parameters are set on installation using internal switches.

A pulsed or continuous output to the blowdown valve may be selected. The pulsed output is suitable for smaller boilers, where continuous valve operation may cause the boiler water level to fall excessively.

As well as the relay output, the BC1100 has a 4 - 20 mA (or 0 - 20 mA) output.

If required, this output signal can be held low (4 or 0 mA) when the blowdown valve is closed.

This switch-selectable feature is useful for in-line sensor installations to prevent a slowly falling signal being transmitted when the blowdown valve is closed and the blowdown line is cooling.

This product complies with the requirements of the Electromagnetic Compatibility Directive 89/336/EEC by meeting the standards of:

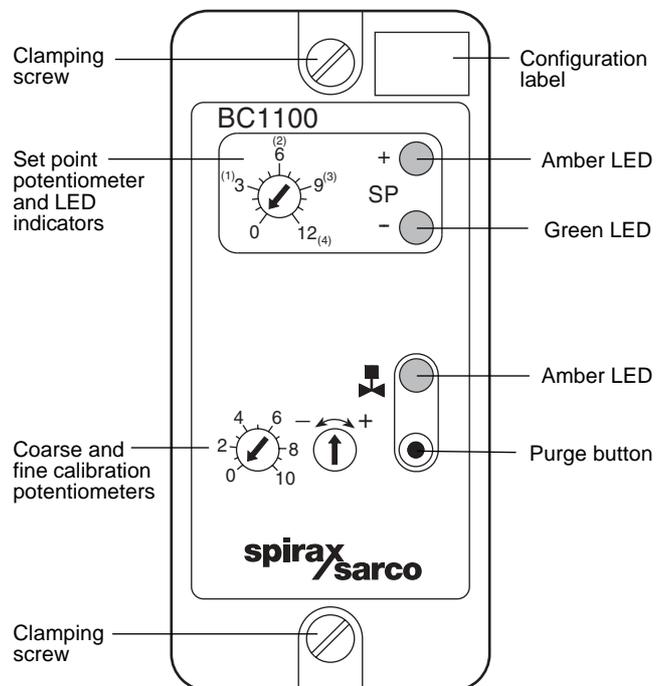
- Emissions EN 61326: 1997 A1 and A2 Class B equipment Table 4.
- Immunity EN 61326: 1997 A1 and A2 Class A equipment Table 1.

Materials

Enclosure base and connector	NORYL SE1 GFN 2
Enclosure cover and intermediate plate	R - ABS 90.00

Limiting conditions

Enclosure protection rating	IP40
Maximum ambient temperature	55°C
Sensor operating temperature range	100°C to 239°C
Accuracy (blowdown duties)	±10%
Minimum conductivity setting	40 µS/cm or 40 ppm



Technical data

The supply voltage is selected during installation.

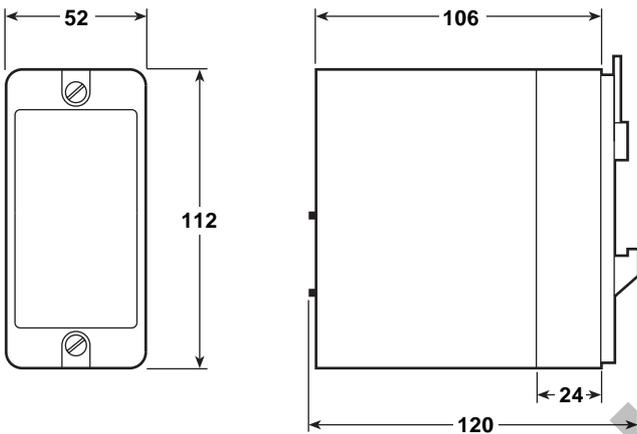
Mains supply voltage	230 V setting	198 - 264 V
	115 V setting	99 - 132 V
Frequency		50 - 60 Hz
Maximum power consumption		6 VA
Switching hysteresis		5% of set point
Time between purges (cumulative burner firing time)		30 minutes

Caution:

The relay must be protected by an external 3 A quick-blow fuse.

Dimensions/weight (approximate) in millimetres and g

Weight 500



Safety information, installation and maintenance

This document does not contain sufficient information to install the product safely. See the Installation and Maintenance Instructions supplied with the product.

Warning:

Isolate the mains supply before unplugging the controller as live terminals at mains voltage will be exposed in the controller base.

Installation note:

The controller must be installed in an enclosure or control panel to provide environmental and impact protection.

Spirax Sarco can supply suitable enclosures. The controller may be mounted on a 'top hat' DIN rail using the mounting clip provided or the clip may be removed and the controller base screwed direct to a chassis plate.

Full wiring, commissioning and operating instructions are given in the Installation and Maintenance Instructions supplied with the controller.

Switch selectable options

Ranges at 25°C ($\mu\text{S}/\text{cm}$ or ppm, switch selectable)

Based on the sensor being at boiler temperature
40 - 400, 120 - 1 200, 400 - 4 000 or 1 200 - 12 000

Purge time (seconds)

10, 20, 60 or 120

Blowdown valve operation

Continuous (not pulsed), or
Pulsed (10 seconds open, 20 seconds closed)

Outputs

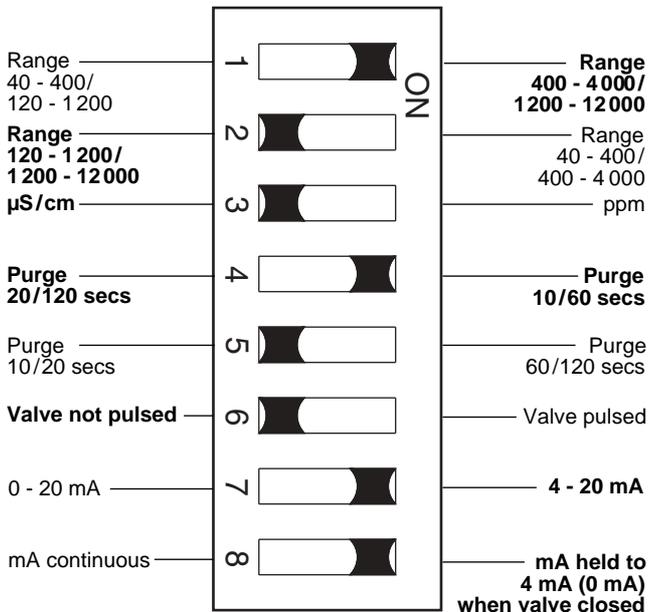
Relay for blowdown valve 4 - 20 mA or
0 - 20 mA representing the controller range.

Blanking feature

mA continuous or
mA held to 4 mA (0 mA) when the valve is closed.

The BC1100 controller is supplied as follows:

- Set for 1 200 - 12 000 $\mu\text{S}/\text{cm}$
- 10 second purge
- Valve not pulsed
- 4 - 20 mA output (held to 4 mA when valve closed)



How to specify

TDS controllers shall be Spirax Sarco type BC1100 for the control of conductivity and TDS concentration in steam boilers. They shall be DIN rail or chassis mounted and be housed in an IP40 Noryl and ABS case. They shall have set point potentiometer and LED indicators, coarse and fine calibration potentiometers, and a purge button to open the blowdown valve manually.

How to order

Example: 1 off Spirax Sarco BC1100 TDS controller.