

TDS CONTROLLERS FOR STEAM GENERATORS (Automatic purge of dissolved solids) BCS-210

DESCRIPTION

Adcatrol BCS controllers are part of the dissolved solids (TDS) control systems of steam boilers water.

The complete system is formed by a special conductivity probe SPS series, BCS-210 controller (with display and ATC) and a VPC blowdown valve.

The system measures the conductivity of the water based on the type of steam generator. When it exceeds a predefined value, drives the blow-down valve by ON/OFF or time proportional control with the purpose of maintaining the water in an optimum TDS value.

The controllers can be configured by means of RS-485 Modbus communication, from a supervisory system of the boiler total control such as, low level safety, continuous level control, mud purge, temperature, etc.



MAIN FEATURES

Maintains the TDS level at optimum value reducing the purges to the minimum.

One TDS blow-down relay output and one alarm relay output

Power supply 85...265 Vac (others in option)

RS-485 Modbus communication.

AVAILABLE MODELS

BSC-210A – 4 -20 mA analogue output

BCS-210R – relay

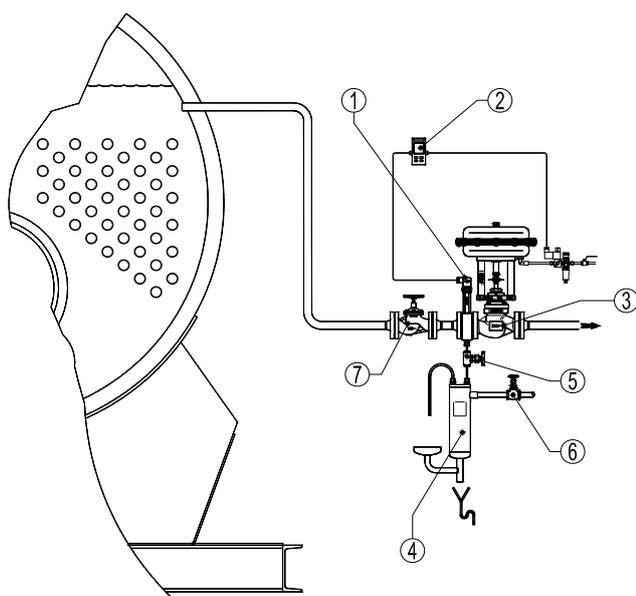
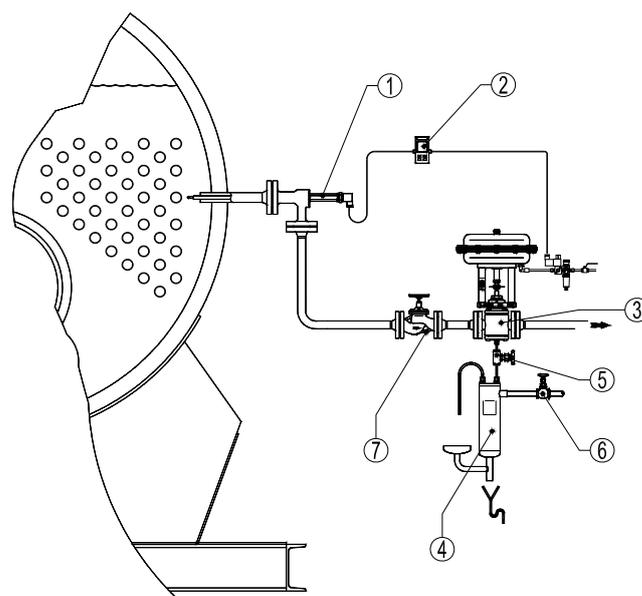
The controllers can work in two ways according with the type of steam generator, probe used or system design.

When the probe is installed in the pipe (Fig.1) the controller drives the blow-down valve with a pre-programmed cadence, opening the valve 10 sec. and closing it during 30 min. (configurable). As the water circulates the system detects when the TDS is over the preset value. The valve remains open until the TDS reaches the predefined minimum value, closing when it reaches a suitable value.

In case of direct installation in the boiler (Fig.2), when the dissolved solids reaches the value set at 3000 $\mu\text{S}/\text{cm}$ (adjustable), a relay activates the blow-down valve in a proportional time until the TDS concentration goes below 2800 $\mu\text{S}/\text{cm}$.

It is provided with one alarm relay outputs activated by maximum (to 5000 $\mu\text{S}/\text{cm}$) and by minimum (to 1000 $\mu\text{S}/\text{cm}$), giving a stop signal to the boiler when the limits are exceeded, in case of some abnormality in the control system.

The control values, alarms, valve activation and alert status can be supervised from a remote PC or PLC by the RS-485 Modbus communication port included as standard.


Fig. 1
Note: Sensor chamber is rotated 90° for catalogue only.

Fig. 2

Pos.	Designation
1	Adcatrol TDS Probes SPS-20 (Fig.1) and SPS-32 (Fig.2)
2	Adcatrol BCS-210 TDS controller
3	Adcatrol VPC-25(Fig.1) and VPC-32 (Fig.2)blowdown valve
4	Adca SC32FSS Sample cooler
5	Adca NV-400 Needle valve
6	Adca GV32B Bronze globe valve
7	Adca VF Bellow sealed globe valve

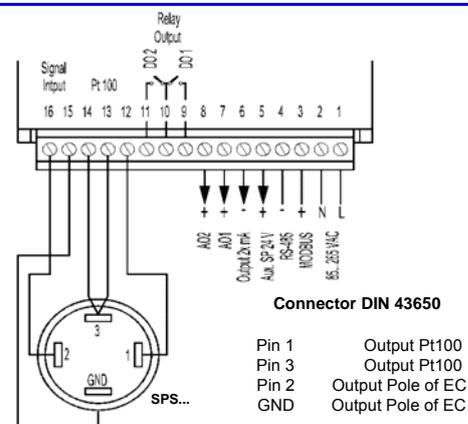
SPECIFICATIONS
TDS CONTROLLER BCS-210

Input EC	SPS probes
Input ATC	Pt100 (Pt1000 as option)
Operating range *	100 µS/cm to 9999 µS/cm
Temperature compensation	Automatic ATC
Purge time	Configurable from 1 to 60 sec.
Pause time	Configurable from 1 to 100 min.
Blow-down output	Relay DO1 3 A 250 V
High-Low alarm	Relay DO2 1 A 250 V
Analog outputs	4-20mA EC and Temp.(Option)

COMMON FEATURES

Power supply	85 to 265 Vac (3,5 VA)
Dimensions	48 x 96 x 110 mm
Comunication	RS-485 Modbus
Weight	0,38 kg

* Lower range available upon request

WIRING DIAGRAM
EXAMPLE OF CONNECTION CONTROLLER BCS-210


1	-----	Power supply 85...265 V ac/dc
2	-----	optional: 12 or 24 V ac/dc
3	+	RS-485 Modbus RTU communication
4	-	
5	+	Auxiliary power supply 24 Vdc 40 mA
6	-	Common to 24 Vdc and AO1 - AO2 outputs (option)
7	+	AO1 Analog output 4-20 mA of Conduct. (option)
8	+	AO2 Analog output 4-20 mA of Temp. (option)
9	⊖	DO1 Blow-down output of TDS. SPST Relay
10	⊖	Common
11	⊖	DO2 Hi and Lo Limit output of EC. SPST Relay
12		
13		ATC by Pt100 input (Pt1000 in option)
14		
15	Without Polarity	Performing input for sensors of:
16		2-poles Conductivity EC probes