

TDS CONTROLLER FOR STEAM GENERATORS (AUTOMATIC PURGE OF DISSOLVED SOLIDS) BCS-211

DESCRIPTION AND OPERATION

The ADCATrol BCS-211 controller is part of the dissolved solids (TDS) control system used in steam boilers. This system is composed by a SPS series conductivity probe, a BCS-211 controller, a VPC series TDS blowdown control valve and, in case of need, a UC-820 universal process controller for PID control.

The BCS-211 controller continuously measures, at the electrode rod in the measuring cell, the electrical conductivity of the boilers' water, which is closely related to the level of TDS. The value measured is then compared with the set point of the controller. If that value exceeds the set point, the controller opens the blowdown valve using its relay (on/off) output (lighting up the "Alarm" indicator lamp).

If the measured value drops below 78% of the set point, the controller relay is energized, closing the blowdown valve (the "Alarm" indicator lamp turns off).

A modulating (PID) control may be achieved by using the BCS-211 4 to 20 mA transmitter output in conjunction with a UC-820 universal process controller.

MAIN FEATURES

- Compatible with both SPS-21 and SPS-33 series conductivity probes.
- Relay (on/off) output and 4 to 20 mA transmitter output.
- Standard 35 mm rail fixation according to DIN EN 50022 or directly screwed to chassis plate.
- Allows quick performance tests by pressing and holding the "TEST K" button.

AVAILABLE MODELS:

BCS-211 – 0 to 10000 $\mu\text{S}/\text{cm}$.

BCS-211B – 0 to 1000 $\mu\text{S}/\text{cm}$.



TECHNICAL DATA

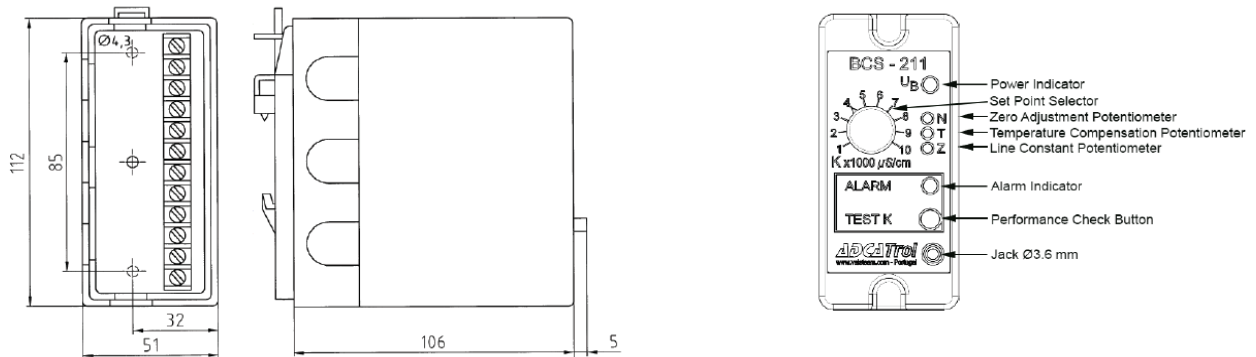
TYPE	BCS-211
Component mark	TUV ID: 0000006175
CE mark	0035 *
Supply voltages	230 V +/- 15% 50/60 Hz
Input	ca. 4,5 VA
Fuse	80 mA/T
Relay output	max. 250 V AC; max. 5 A
Transmitter output	4 to 20 mA
Electrical conductivity range of the liquid	0 µS/cm to 10 000 µS/cm 0 µS/cm to 1 000 µS/cm **
Adjustable conductivity set point value at 25 °C	1 000 µS/cm to 10 000 µS/cm 100 µS/cm to 1 000 µS/cm **
Protection as per DIN EN 60529	IP 40 ***
Ambient temperature	0 °C to 60 °C

* According to PED directive annex VII (Module B+D, category II).

** Version available upon request (BCS-211B).

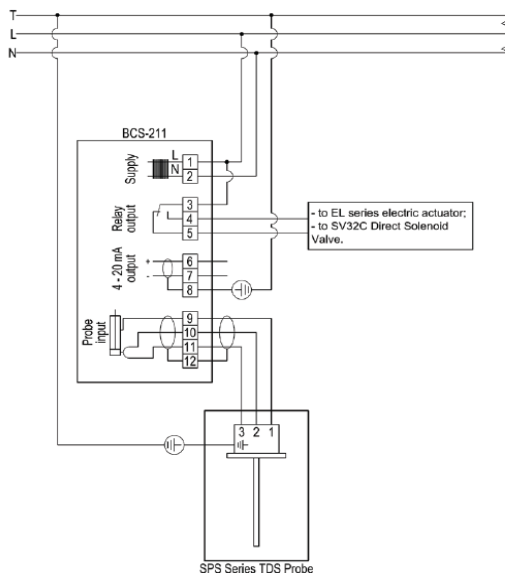
*** According to German regulations Vd TUV – Wasserstand 100, 4,90 a protection of IP 54 has to be maintained in the boiler area.

DIMENSIONS AND FUNCTIONS

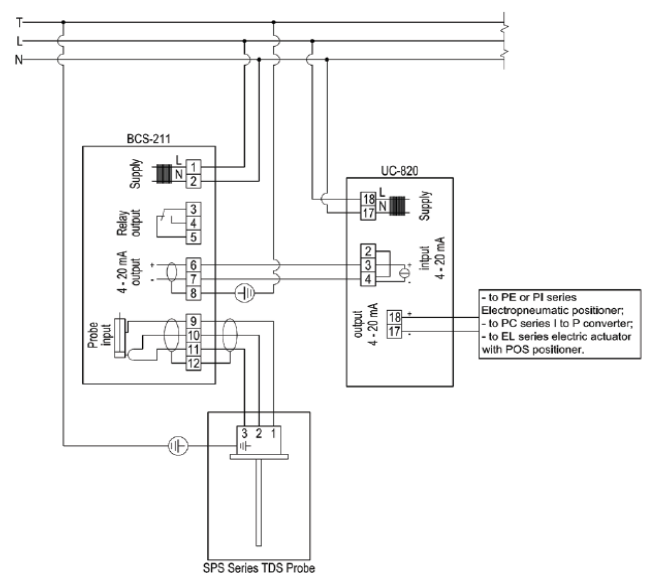


WIRING DIAGRAMS

RELAY ON/OFF OUTPUT



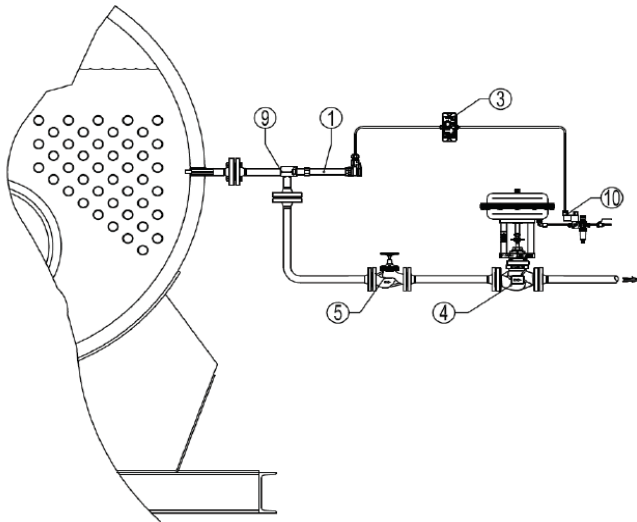
TRANSMITTER 4 to 20 mA OUTPUT



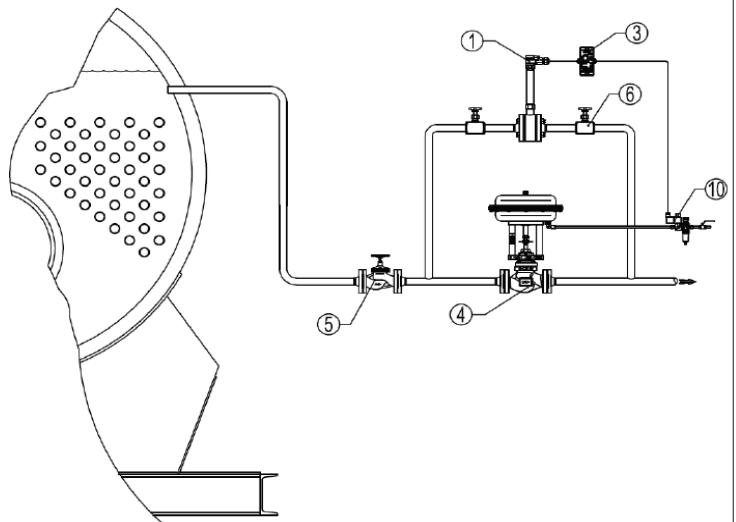
TYPICAL INSTALLATIONS

RELAY (ON/OFF) OUTPUT

**FIG. 1 – DIRECT BOILER CONDUCTIVITY MEASUREMENT
 (USING SPS-33 PROBE)**

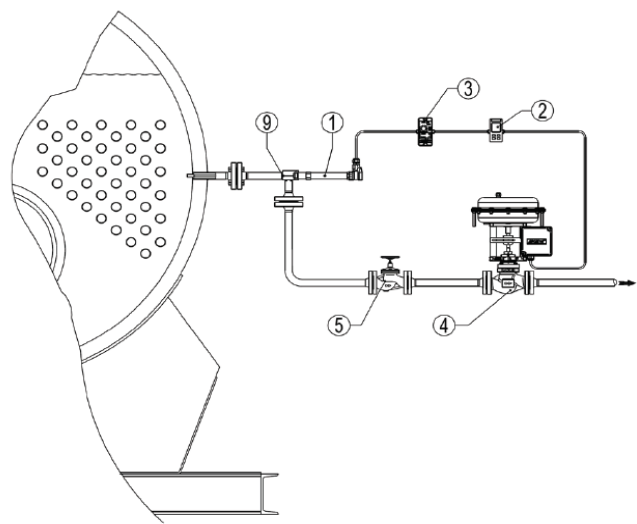


**FIG. 2 – INLINE CONDUCTIVITY MEASUREMENT
 (USING SPS-21 PROBE)**

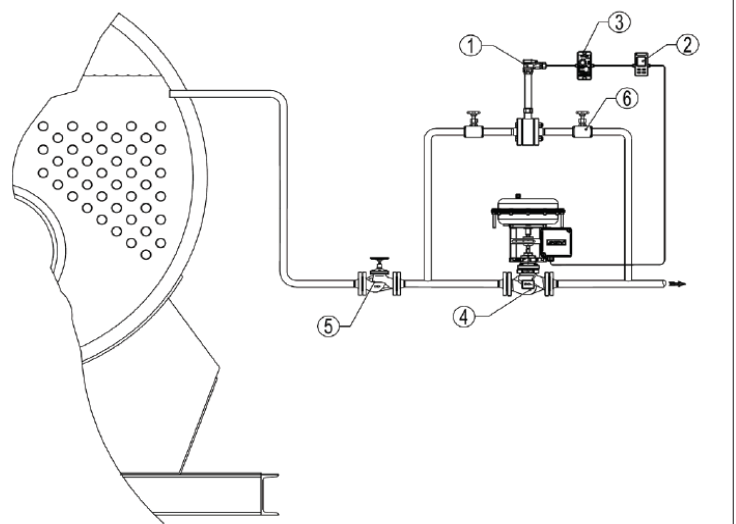


TRANSMITTER (4 to 20mA) OUTPUT

**FIG. 3 – DIRECT BOILER CONDUCTIVITY MEASUREMENT
 (USING SPS-33 PROBE)**



**FIG. 4 – INLINE CONDUCTIVITY MEASUREMENT
 (USING SPS-21 PROBE)**



MATERIALS

POS. N°	DESIGNATION
1	ADCATrol SPS-33 (fig. 1 and fig. 3) and SPS-21 (fig.2 and fig.4)
2	ADCATrol UC-820 universal process controller
3	ADCATrol BCS-211 TDS controller
4	ADCATrol VPC series TDS blowdown control valve
5	ADCA VF bellow sealed globe valve
6	ADCA NV400 needle valve
9	Tee piece type F-3220
10	SV32C direct solenoid valve

* Available spare parts.