Modulated Level Control Probe

SD 3400

Installation and Operating Instructions

EN

English

NOTES

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CONTENT

1. SAFETY INFORMATION

Installation, commissioning and maintenance of this device must be done by a qualified personnel in compliance with the operating instructions. Otherwise device and related equipments may be damaged and personnel may be injured. General installation and safety instructions for pipeline and plant construction, as well as the proper use of tools and safety equipment must also be complied with.

National and local regulations must be taken into consideration.

Warning!

Please make sure to remove the main supply before installation. Otherwise this may cause damage to the product, personal injuries or even death

1.1 Tools

Before starting work, make sure that you have suitable tools and and consumables available.

1.2 Temperature

Let the temperature to cool down after isolation to avoid danger of burns.

1.3 Freezing

Required precautions must be taken at the places where they may be exposed to temperatures below freezing point.

1.4 Lighting

Make sure there is enough lighting, particularly where detailed or tough work is required.

1.5 Pressure

Make sure that any pressure is isolated and safely vented to atmospheric pressure. Do not assume that the system has depressurised even when the pressure gauge indicates zero.

1.6 Access

Before attempting to work on the product, safe Access must be ensured. If necessary, lifting gear should be used.

1.7 Residual hazards

The external surface of the product may be very hot. If used at the maximum operating conditions according to the specs, the surface temperature of some products may reach temperatures of 239°C.

1.8 Hazardous environment

Plant rooms are usually explosion risk areas. There may be lack of oxygen, dangerous gases extremes of temperature, hot surfaces, fire hazard excessive noise, moving machinery.

1.9 Suitable protective clothing

In order to be protected against the hazards of chemicals, high temperature, radiation, noise, falling objects, and dangers to eyes and face, anyone around requires protective clothing suitable in the plant room.

1.10 Hazardous liquids or gases

Be aware of that it cannot be known what may have been in the pipeline at previous usage. Consider: flammable materials, substances hazardous to health, extremes of temperature.

1.11 Supervision

All work must be carried out or be supervised by a suitably competent person. Installation and operating personnel should be trained in the correct use of the product according to the Installation and Operation Instructions.

1.12 Disposal

Unless otherwise stated in the Installation and Operation Instructions, this product is recyclable and no ecological hazard.

1.13 Returning products

When returning products to Vira Isı ve Endüstriyel Ürünler A.Ş the customers must provide information on any hazards and the precautions to be taken due to contamination residues or mechanical damage which may present a health, safety or environmental risk.

2. GENERAL INFORMATIONS

2.1 Description

As steam is generated, the water in the boiler evaporates and water must be added with a feed water pump to maintain the level of the boiler. Water should be kept at the right level to avoid damaging the boiler and to ensure efficient operation.

For this reason, a level control system that monitors and controls the water level detects whether the water level is low and gives an alarm, performs the necessary actions to shut off the feed water pump or burner.

Of course, it is recommended to have an external indicator, such as level gauges, to see the water level step by step. Another suggestion is to have a secondary level control system in case of damage to the primary one.

In the modulating level control system, the feed pump runs continuously and an automatic valve (between the feed pump and the boiler) controls the feed water flow rate to meet the steam demand.

Level Controller SK 3400, Capacitive Level Probe SD 3400, and Level Control Valve SKV 3400 working in conjunction with the capacitance principle of conductive liquids provide level control. The controller and probe are suitable for use in liquids of all different properties such as water, condensate, boiler water. The Modulating Level Control System can be used in waters with a conductivity of more than 10 µS / cm (at 25 ° C).

In the Modulating Level Control System, the water level of the boiler is controlled by opening and closing the SKV 3400 Level Control Valve SKV 3400 at the water levels determined by the Capacitive Level Probe SD 3400. There are also two different alarm outputs, low and high.

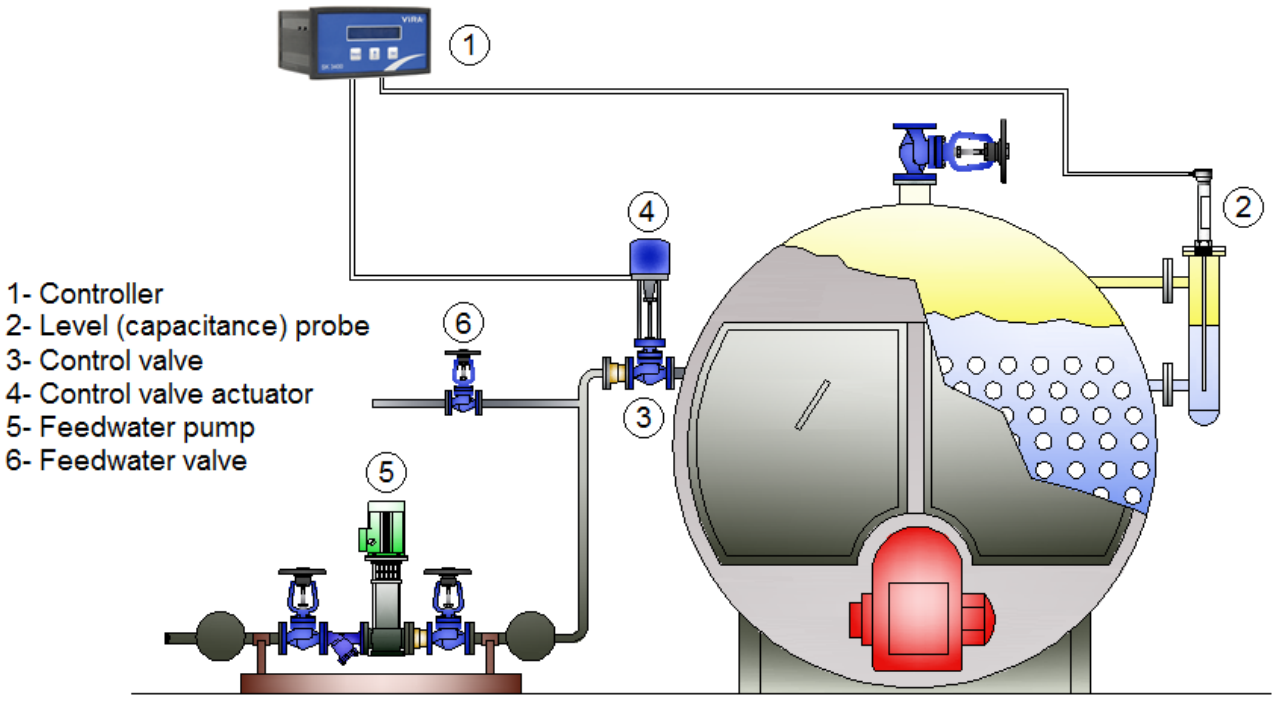


Figure 1: Modulating Level Control System application

3.TECHNICAL SPESIFICATIONS

Max. Operating Pressure : 32 bar g

Nominal Pressure : PN 40

Max. Operating Temp. : 239 °C

Min. Conductivity Value : 10 µS/cm (at 25 °C)

Connections : 1/2'' BSP Screwed

Wiring : 3x1 mm2 screened cable

Tip Lengths : 300-1500 mm

Weight : 1,6 kg (for L=700 mm)

Installation : Vertical

Materials:

Socket : Polyamid

Probe Body : Stainless Steel

Electrode : Stainless Steel

Insulation : PTFE

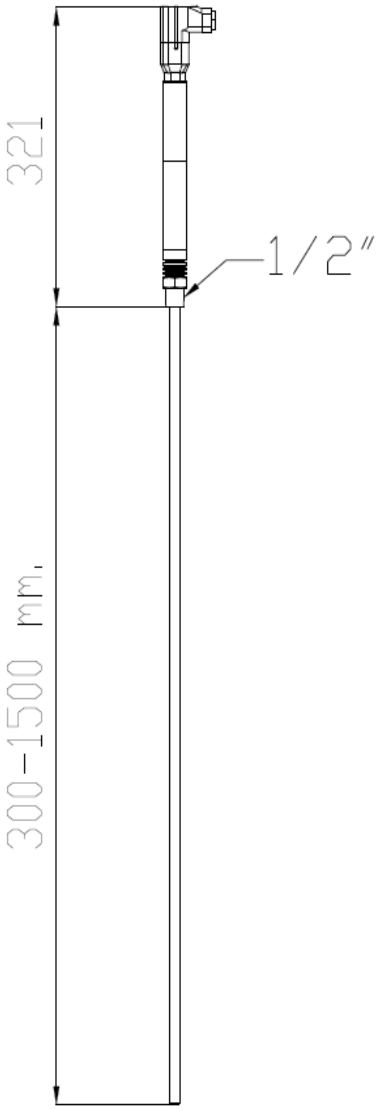


Figure 2: SD 3400 Level Probe

4. INSTALLATION and WIRING

4.1 Installation

It is possible to mount SD 3400 Level Probe to the boiler with two different ways.

4.1.1. Installation to Level Tube

While installation, teflon band or sealing gasket must be used on screwed part to provide impermeability.

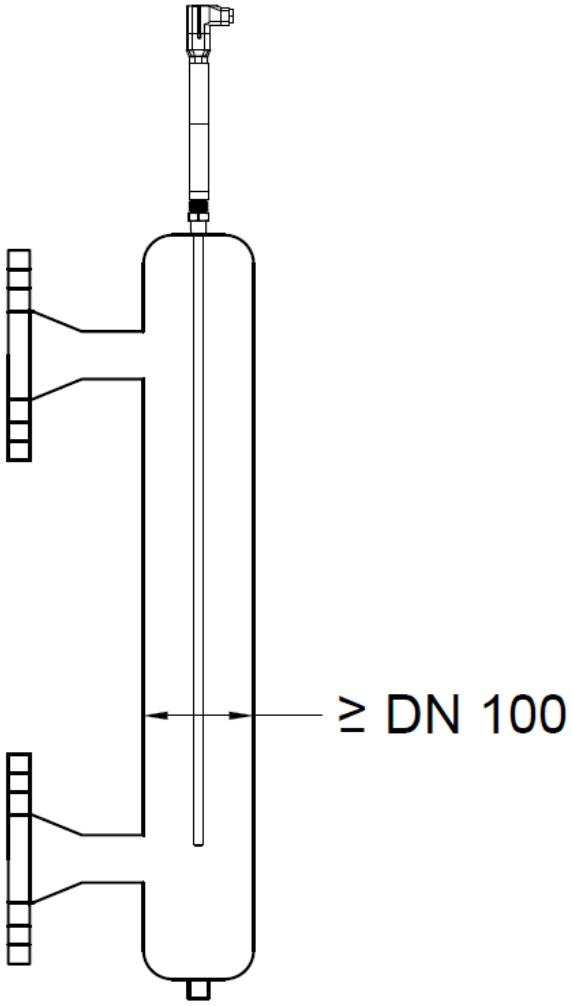


Figure 3: Installation of SD 3400 Capacitive Level Probe to Level Tube

4.1.2. Installation to Protection Tube

While installation, teflon band or sealing gasket must be used to provide impermeability.

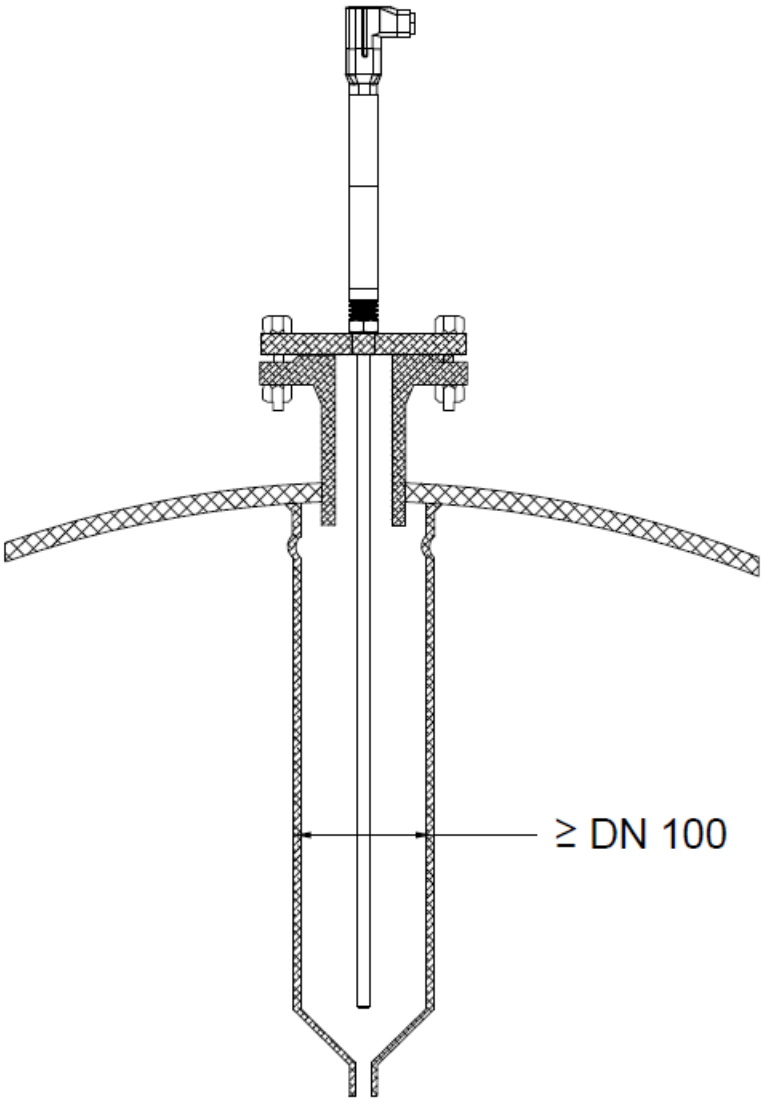


Figure 1: Installation of SD 3400 Capacitive Level Probe to Protection Tube

4.2 Wiring

Warning!

AY 3400 Current Amplifier should be mounted on its probe before cable connections are made. (It is mounted as standard). Please refer to “AY 3400 Preamplifier Installation and Operating Instructions” for mounting of current amplifier..

3x1 mm2 shielded cable should be used in electrical connections. The controller and probe cable should not be pulled together with high voltage cables, they should not be placed in the same channel.

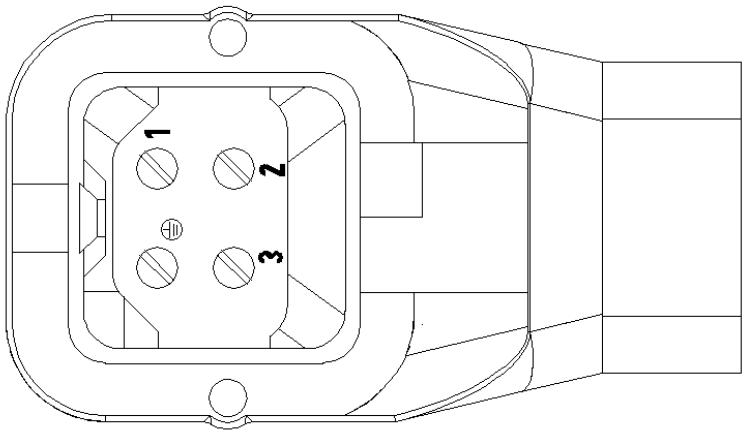
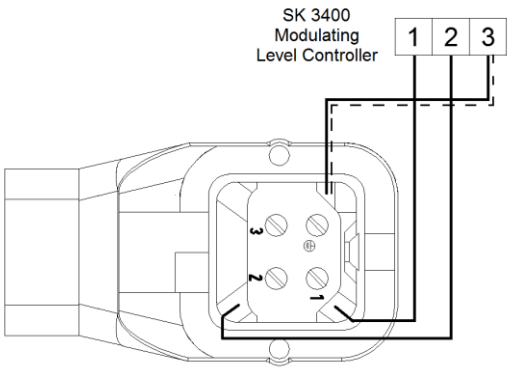


Figure 5: Cable Connector of Preamplifier AY 3400

Remove the screws on the cable connector and remove the male connector. Make the cable connections between SK 3400 and AY 3400 cable connector with 3x1 mm^2 screened cable like in Figure 6.



Note: Connect cable screen (shield) to only probe side using ⏚ terminal. **Left the controller side of screen unconnected.**

Figure 6: Cable Connections between Controller and Capacitive Probe

5. COMMISSIONING

Warning!

Make sure that the phase and neutral connections are connected to the correct terminals in the SK 3400 Modulating Level Control.

Check the tightness of the connection thread of the installed level probe.

The boiler water should be brought to the specified levels to check the alarm functions and all other functions and verify that the controller is operating correctly.

6. MAINTANANCE

Warning!

Before unmount the probe, boiler pressure must be reduced to atmospheric pressure (0 bar g) and boiler temperature must be at a safe level.

Do not unmount the probe before disconnect the cables. Otherwise cables may be damaged.

The level probe should be disassembled at regular intervals of 6 months to check the condition of the probe rod and the rods should only be cleaned with cloth or a very soft brush. Do not use any chemicals or hard cleaners. Otherwise the teflon coating on the probe rod may be damaged.

Regular function tests are recommended.

If scale or corrosion coating is seen on the probe electrodes, consult a specialist for water treatment in steam boilers.

When any fault situation occurs or maintenance is necessary, please contact with **"Vira Isı Service Department".**

Vira Isı ve Endüstriyel Ürünler A.Ş.

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