

Level Alarm Probe

SD 1200

Installation and Operating Instructions

EN

English

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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 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 INFORMATION

2.1 Description

Most industrial boilers are monitored without a guard. Low water level and high water level alarms are mandatory in these boilers and a low water alarm is required to turn off the boiler.

The low level can be caused by malfunction of the feed pump, a shortage of feed water in the feed water tank, inadvertent isolation of the feed water line by means of a valve, and failure of the level control system.

What happens if low water levels are not avoided?

The effect of the low water level in a boiler is that heated tubes or pipes can be released and are no longer cooled by the boiler water. In this case, the metal temperature increases rapidly and the strength decreases and often precipitation occurs.

Vira Level Alarm probes are used in 3 different ways. Two electrode high alarms, two electrode low alarms, one of them is high and the other one is the low alarm.

The SK 1200 Level Controller can be used, with SD 1200 Level probes which operate on conductivity principle for providing level alarm signals in conductive liquids. The Level Controller and probe are suitable for use with different qualities of liquids such as water, condensate, boiler water. Level Alarm Systems can be used in water with an electrical conductivity as low as 10 $\mu\text{S}/\text{cm}$ at 25 °C.

The SK 1200 Level Controller has an automatic sensitivity level and filter function that response under the very different conductivity and turbulence conditions in the tanks and high steam out boilers. This sensitivity can be adjusted during installation. There is one function for each electrode. Each electrode can be cut to the required length to use on installation. Two different functions could be provided by Level Probe SD 1200:

- 1st Alarm (Low or High)
- 2nd Alarm (Low or High)

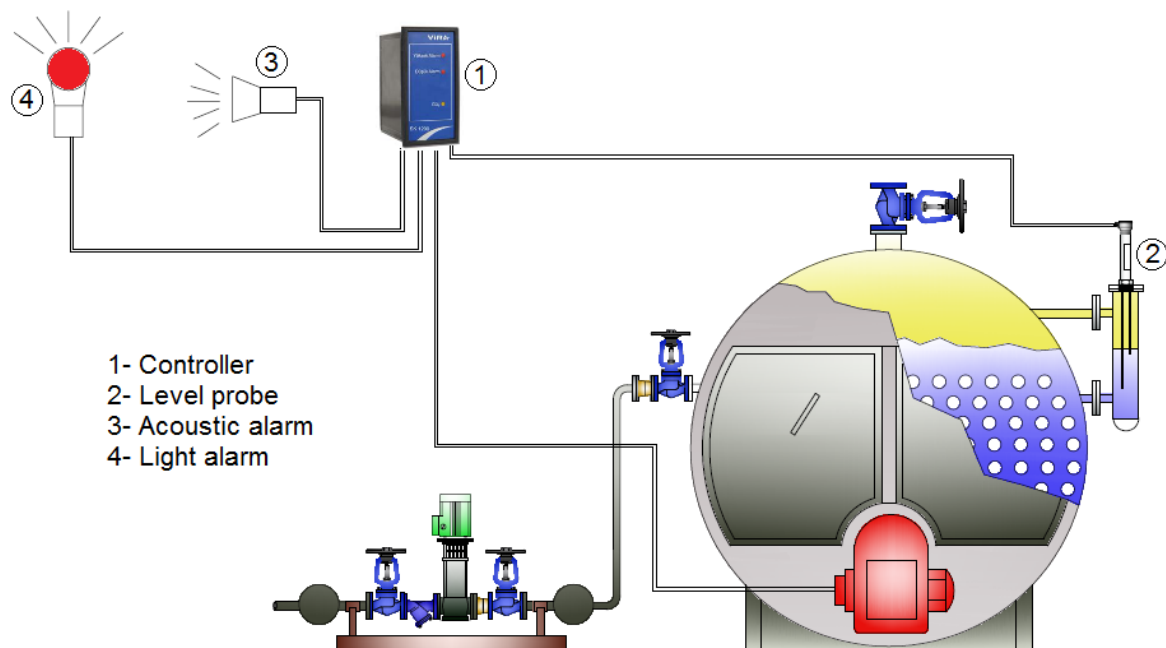


Figure 1: SK 1000 Level Alarm System Application on a Steam Boiler

3. TECHNICAL SPECIFICATIONS

SD 1200 Level Probe has 2 electrodes. Each electrode can be cut out at desired lengths to give alarm signals at desired water levels.

| | |
|--------------------------------|--------------------------------------|
| Max. operating pressure | : 32 bar g |
| Nominal pressure | : PN 40 |
| Max. operating temp. | : 239 °C |
| Max. ambient temp. | : 70 °C |
| Min. conductivity value | : 10 µS/cm (at 25 °C) |
| Connections | : 1" BSP Screwed |
| Wiring | : 3x1 mm ² screened cable |
| Electrode Lengths | : 500, 1000, 1500 mm |
| Weight | : 1,5 kg |
| Installation | : Vertical |
| Materials; | |
| Socket | : Polyamid |
| Probe Body | : Stainless Steel |
| Electrodes | : Stainless Steel |
| Insulation | : PFTE |

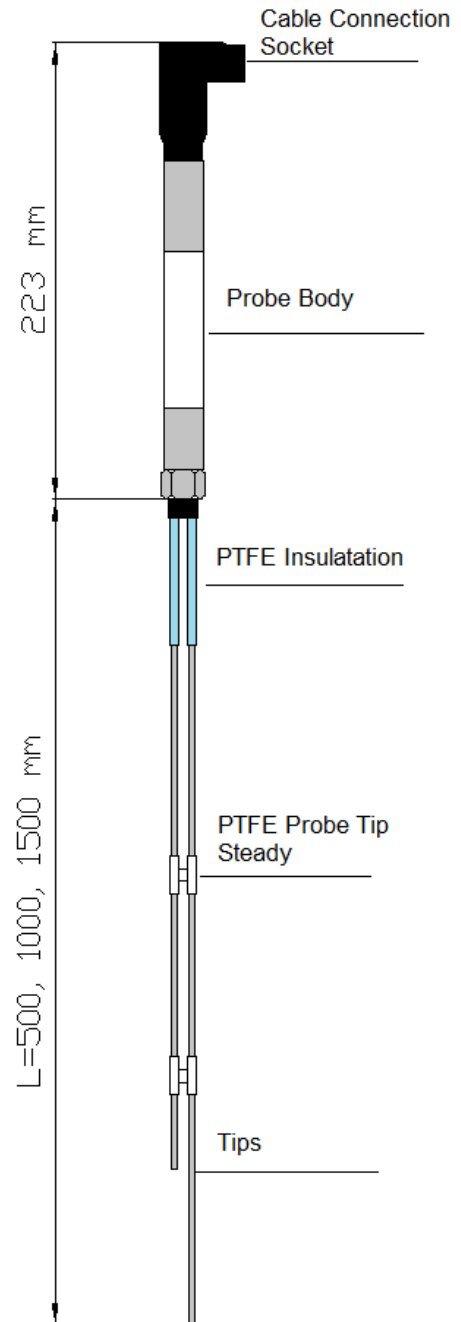


Figure 2: SD 1200 Level Probe

4. INSTALLATION AND WIRING

4.1 Cutting the Electrodes

Each electrode's function must be determined and their length must be measured carefully.

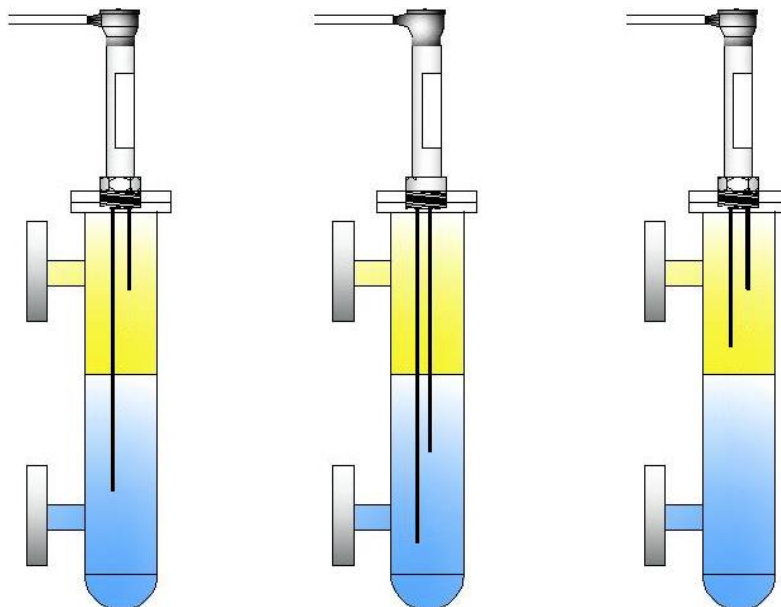


Figure 3: Various Alarm Levels that can be Applied by Cutting Probe Electrodes

Electrodes can be cut by using bar shears or grinder machine. After cutting, burrs that occur while cutting should be cleaned.

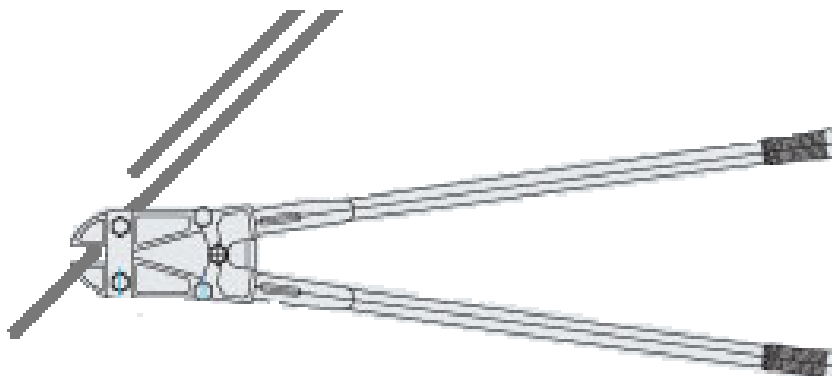


Figure 4: Cutting of Probe Electrodes by Using Bar Shears

There are electrode numbers where are joined to probe body. Please note the numbers and related alarm functions (high, low) to the table below.

| Function | Selected Function | Electrode Number |
|-----------|-------------------|------------------|
| 1st Alarm | | 1 |
| 2nd Alarm | | 2 |

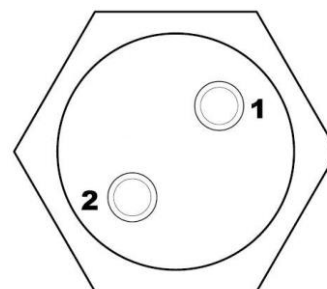


Figure 5: Electrode Numbers on the Body

4.2. Installation

It is possible to mount SD 1200 Level Probe to the boiler with two different ways.

4.2.1. Installation to Level Tube

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

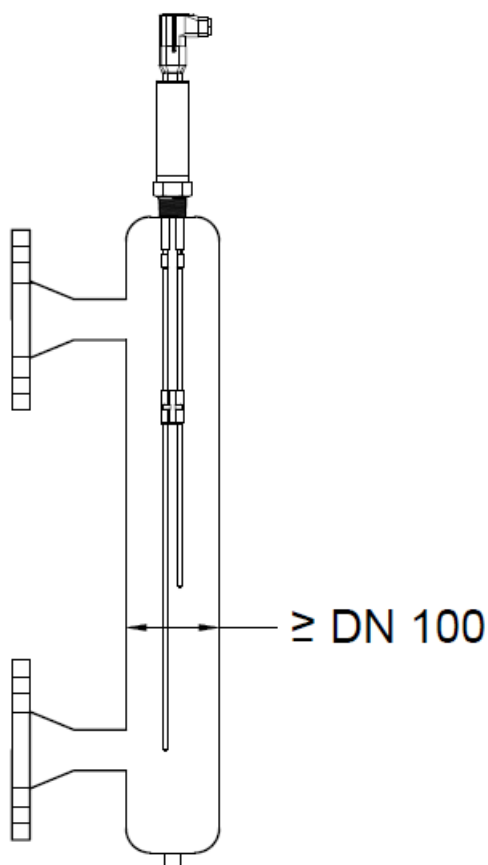


Figure 6: Installation of SD 1200 Level Probe to Level Tube

4.2.2. Installation to Protection Tube

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

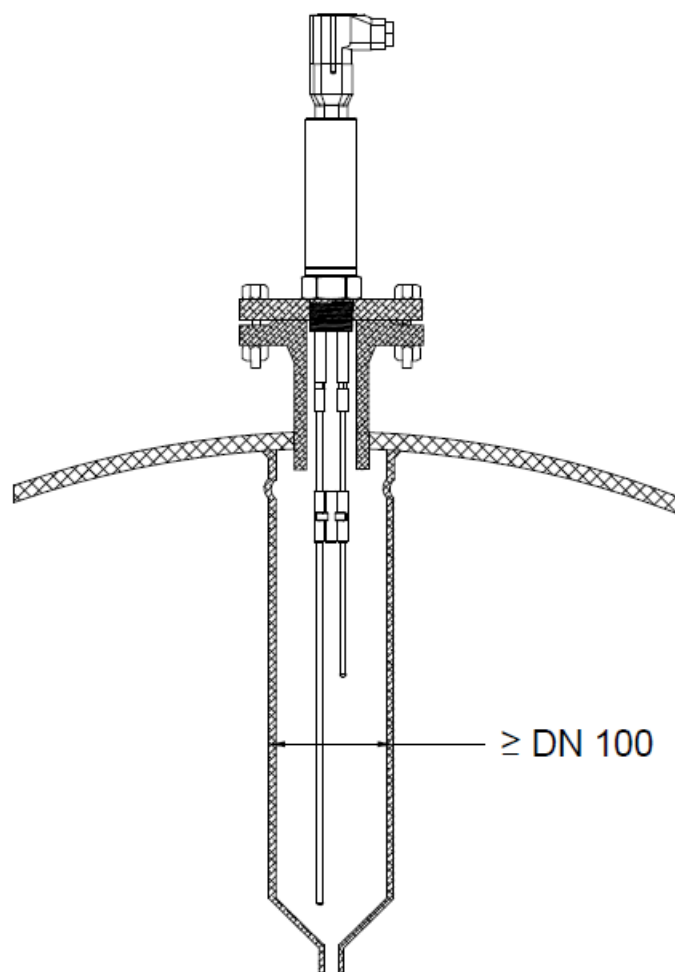


Figure 7: Installation of SD 1200 Level Probe to Protection Tube

If necessary, two probes can be installed to same protection tube with sufficient clearance between the electrodes.

4.3. Wiring

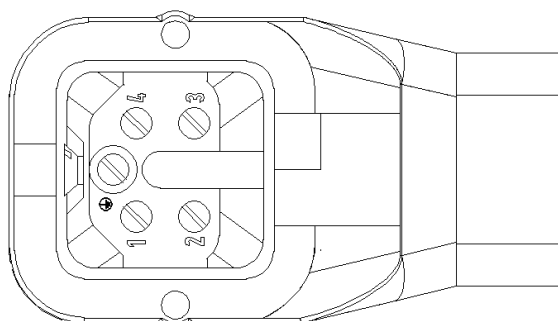


Important!

Make cable connections after installation. Otherwise it is impossible to do installation because of connected cables.

3x0,5 mm² screened (shielded) cable can be used for wiring.

Cables between controller and probe must not be spanned with high voltage cables and must not be placed to same cable conduit.



Remove the screws on the cable connection socket and plug off the socket. Make cable connections like in Figure 8. Connect cable screen (shield) to only probe side using ground terminal. **Left the controller side of screen unconnected.**

Figure 8: Cable Connection Socket of SD 1200

Level Probe

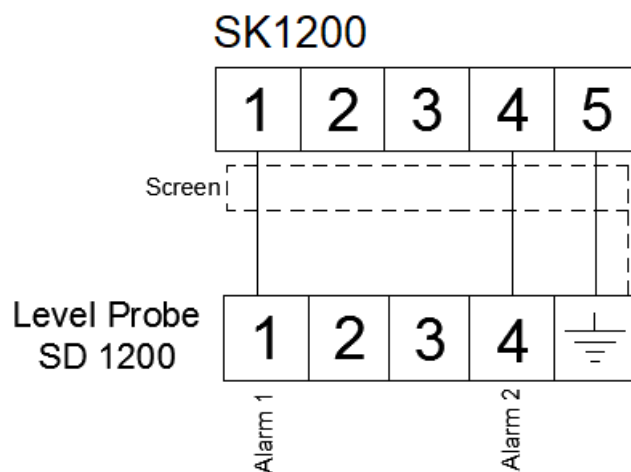


Figure 9: Cable Connections Between SD 1200 Level Probe and SK 1200 Level Alarm Controller

5. COMMISSIONING

- Check impermeability of probe after installation.
- Be sure that phase and neutral ends are connected to right terminals on both probe and controller.
- Take boiler water level into determined levels and check that alarm relay outputs are working properly.

6. MAINTENANCE

Warning!



Before unmount the level 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.

Level probe must be unmounted approximately 6 month periods and probe must be checked. If necessary, electrodes must be cleaned gently.

It is recommended to make function tests regularly.

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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