Level Alarm Controller

SK 1200

Installation and Operating Instructions

EN

English

NOTES

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 INFORMATION

2.1 Description

Most industrial boilers are monitored without 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 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 1 µS/cm at 25 °C.

The SK 1200 Level Controller has an automatic sensitivity level and filter function which 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 fuction 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)

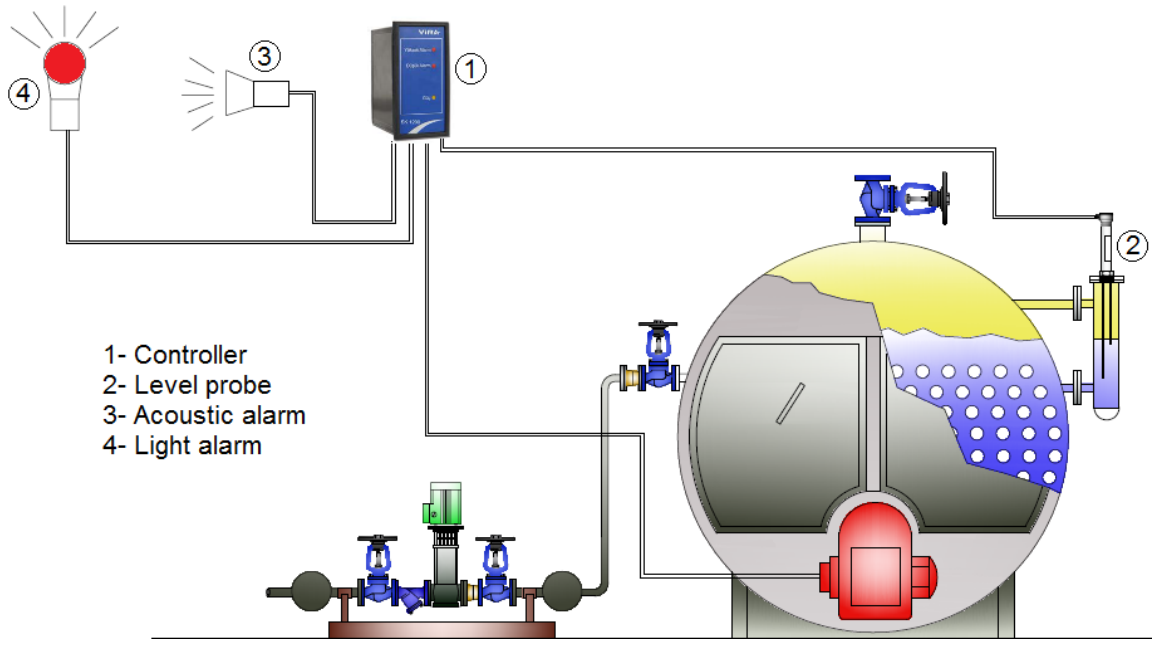

Figure 1: SK 1000 Level Alarm System Application on a Steam Boiler

3.TECHNICAL SPESIFICATIONS

Enclosure	: IP 54
Maximum ambient temperature	: 55 °C
Maximum wire length	: 100 m (Controller to probe)
Main supply voltage	: 220/230 V
Frequency	: 50/60 Hz
Maximum power consumption	: 3 VA
Dimensions (height x depth x width)	: 144 x 110 x 72 mm
Weight	: 0.5 kg

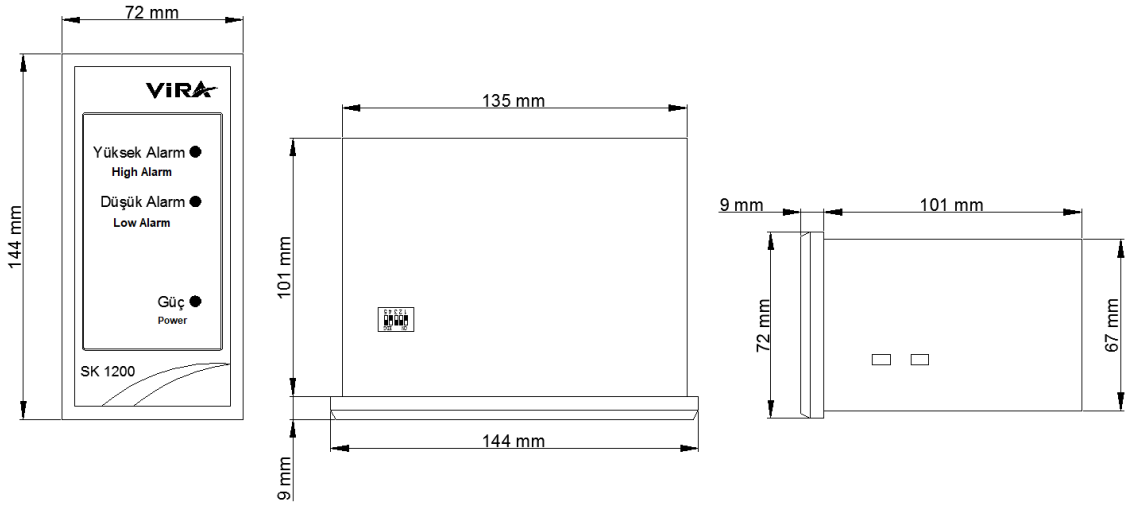

Figure 2: SK 1200 Level Alarm Controller Case Dimensions

4. INSTALLATION AND WIRING

4.1 Installation

SK 1200 Level Alarm Controller is front panel mounting enclosure type and can be applied on the front panel with two screw clamps supplied. Allow 20 mm minimum clearance all-round the unit for air circulation.

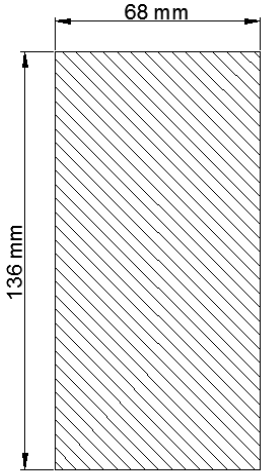

Figure 3: Panel Cut Out Dimensions of SK1200 Level Alarm

4.2. Wiring

For wiring of probe 3x1 mm2 screened (shielded) cable, for other wirings 1 mm2 normal cable can be used.

Avoid changing terminal blocks places.

There are phase inputs between 6th and 16th terminal connections of the controller. So, from 1st to 8th terminal connections must not connect to from 9th to 16th terminal connections or vice versa. Otherwise, device can be damaged even it causes personal injuries.

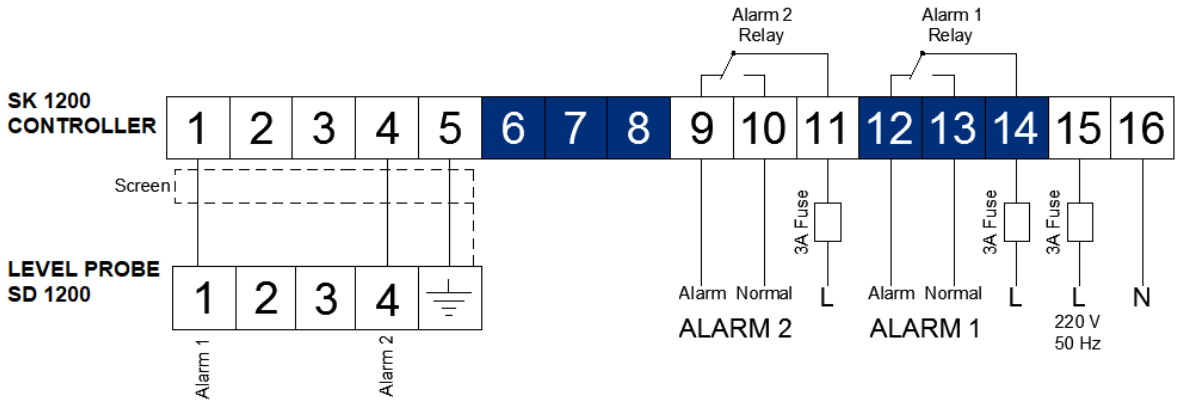

Figure 4: SK 1200 Level Alarm Controller Wiring Diagram

Warning!

At the all phase inputs of the controller, must be used 3A fuse (non-delay type).

Probe cable screen (shield) must be connected to 3rd terminal only. (Figure 4). **Controller side of the screen must be left unconnected.**

Avoid connecting any other earth to 5th terminal input and must not connected with the other earth on the clipboard.

Note: For wiring of SD 1200 Level Probe, please refer to “SD 1200 Level Probe Installation and Operating Instructions”.

5. COMMISIONING

- Be sure that all function values are adjusted with DIP switches correctly.
- Be sure that all phase and neutral ends are connected to the right terminals.
- Boiler water must be taken into determined levels then it must be checked that alarm outputs are working correctly.

6. FUNCTIONS and CONFIGURATIONS

With the DIP switches at the side of the case (Figure 5) the following functions can be selected:

- Turbulence filter time (Alarm Delay Time)
- Alarm functions

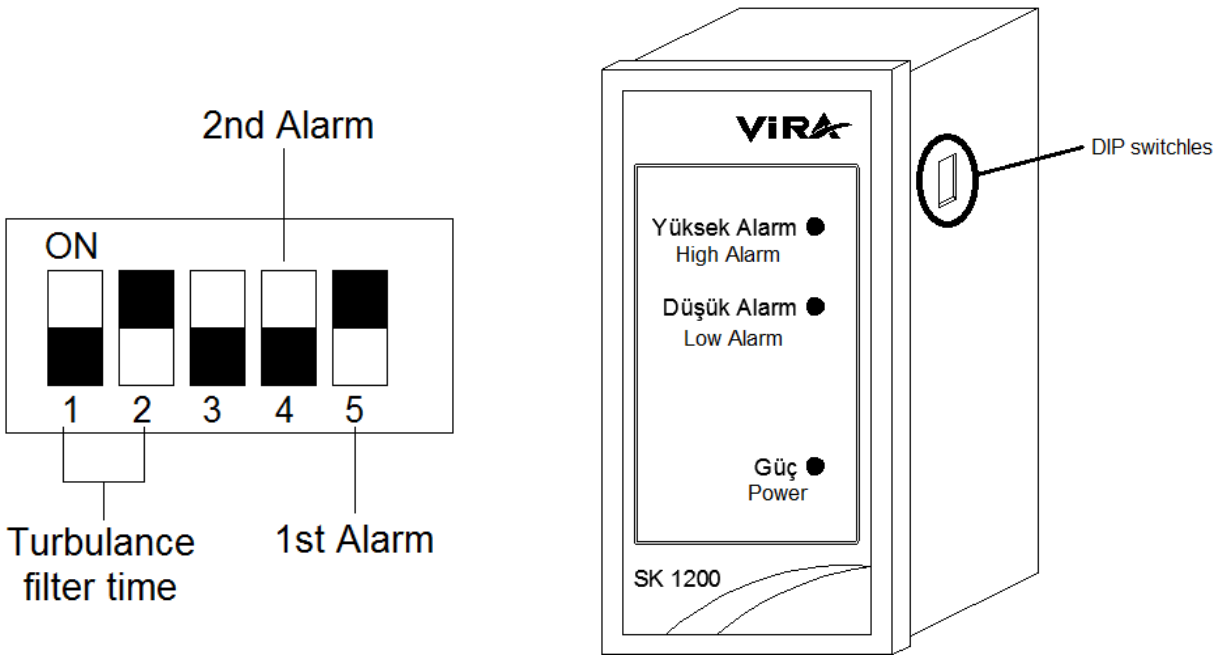

Figure 5: Functions Selection DIP switches of Level Alarm Controller SK 1200

6.1. Turbulence Filter Time (Alarm Delay Time)

Inside the boilers and tanks, water fluctuates. Therefore, level controller probe cannot detect water level properly. To prevent this, turbulence delay time must be adjusted before commissioning. In Figure 6, DIP switch positions and related delay times are shown. After the adjustment, controller's supply power must be cut and on again.

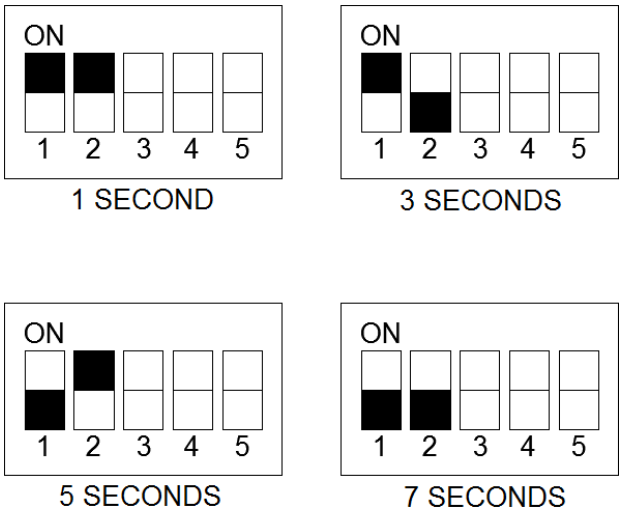

Figure 6: Turbulence Filter Time DIP Switch Positions

6.2. 2nd Alarm

2nd alarm function can be adjusted with DIP switches as high or low like the following Figure 7.

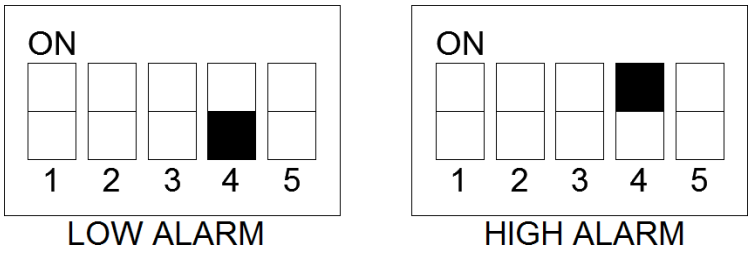

Figure 7: Low and High Alarm Function DIP Switch Positions of 2nd Alarm

6.3. 1st Alarm

1st alarm function can be adjusted with DIP switches as high or low like the following Figure 8.

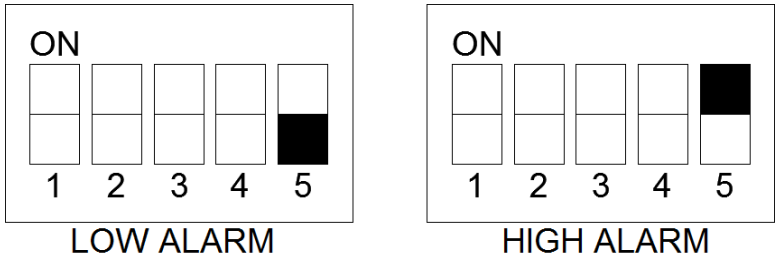

Figure 8: Low and High Alarm Function DIP Switch Positions of 1st Alarm

6.4. Factory Default Settings

Turbulence delay time : 5 seconds

1st Alarm : High Alarm

2nd Alarm : Low Alarm

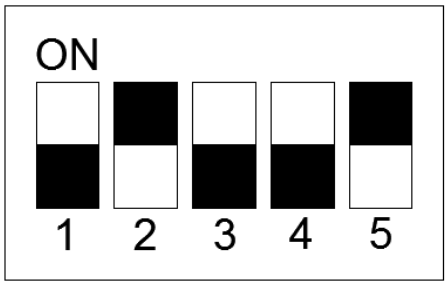

Figure 9: Factory default settings DIP Switch Positions of SK 1200 On-Off Level Controller

7. TROUBLESHOOTING

Most faults that occur on commissioning are due to incorrect wiring or setting up. In the case of problems the following checklist may be helpful.

Symptom	Solution
No leds lit.	Check mains power supply.
High or low water alarm lit when water is at normal working level.	Check DIP switch selection for alarm function.

8. MAINTENANCE

Warning!

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

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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