# LEVEL LIMITING & ALARM

Reliable water level monitoring is one of the most critical safety requirements in steam boiler operation. For this reason, two different types of systems are used in compliance with EN 12952 and EN 12953:

**Level Alarm Systems**
Level alarm systems continuously monitor the water level inside the boiler and generate an alarm signal when the defined high or low level limits are reached. These systems are primarily used to warn operators of abnormal operating conditions and allow timely intervention. Vira's SK 1000 and SK-T 1200 series provide dependable alarm functions for both high and low water levels.

**Level Limiter Systems**
Unlike alarm systems, level limiters are designed as safety devices that automatically shut down the burner or stop fuel supply when a critical water level is reached. Vira's SMH 1000, D-SMH 1000 (high level) and SML 1000, D-SML 1000 (low level) self-monitoring limiters incorporate advanced diagnostic functions such as:

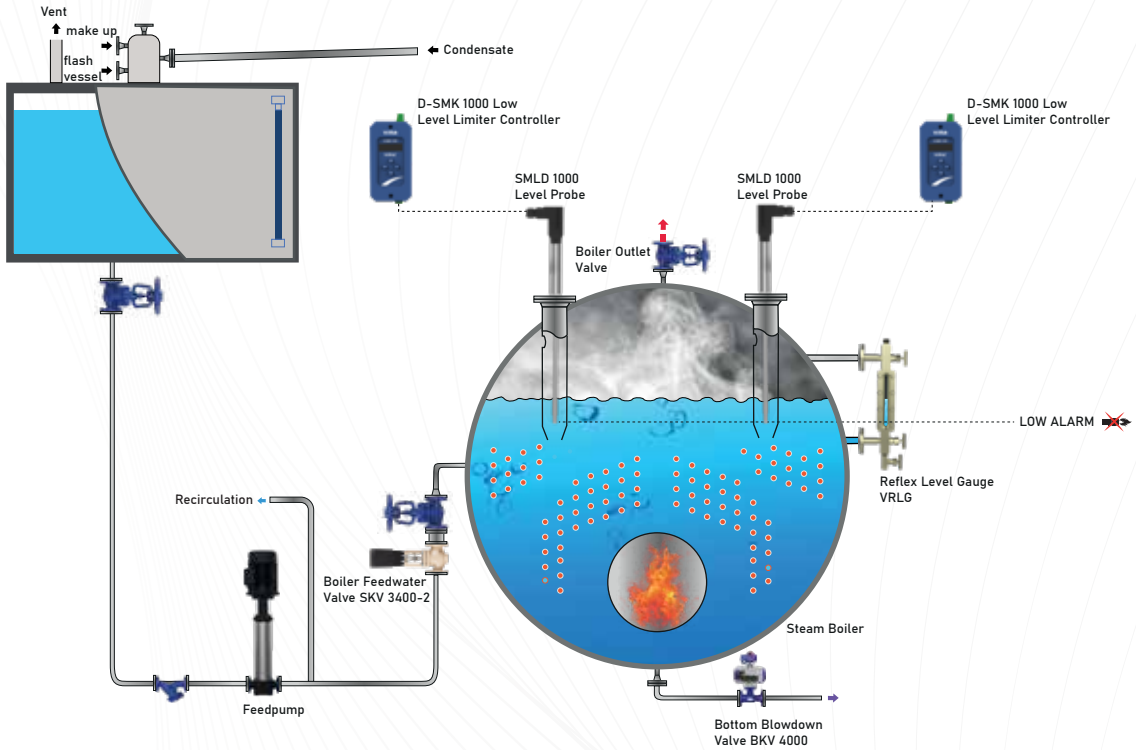
- Detection of open circuit (cable break) or short circuit in the connection lines
- Verification of probe contact with the boiler body
- Monitoring for probe leakage and contamination
- Periodic internal circuit self-checks
- Automatic fault alarm in case of any irregularity

**Difference Between Alarm and Limiter Systems**

A Level Alarm system provides warnings to the operator when the water level in the boiler reaches a predefined high or low point. The alarm signal is transmitted via relays, but the device itself is not self-monitoring and not redundant.

A Level Limiter, on the other hand, is a certified safety device designed to automatically shut down and lockout the boiler in case of dangerous low or high water level conditions. Unlike alarms, limiters fulfill mandatory safety requirements in accordance with EN 12952 and EN 12953 standards.

**Note:** SMH 1000, D-SMH 1000 and SML 1000, D-SML 1000 self-monitoring level limiter systems are certified for use in unattended boiler operation in line with EN 12952 and EN 12953 requirements.



# SK 1000 Level Alarm System

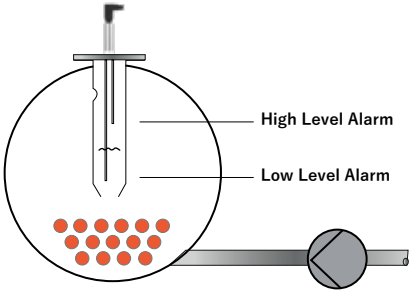

## Level Alarm Controller

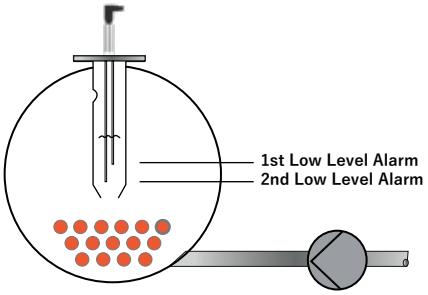
| | |
|---|---|
| **Type** | : SK 1200 |
| **Supply Voltage** | : 230 VAC (+5% / -10%), 50/60Hz |
| **Enclosure** | : Panel-mount Type |
| **Functions** | : High Level Alarm, Low Level Alarm |
| **Outputs** | : 2 Alarm Relays |
| **Max. Ambient Temp.** | : 55 °C |
| **Compliance** | : CE (EMC 2014/30/EU, LVD 2014/35/EU), EN 12952 & 12953,Type Approval (Module B + D) |

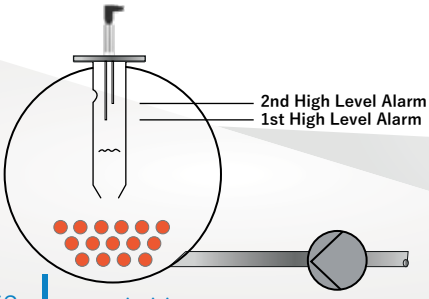
## Level Alarm Probe

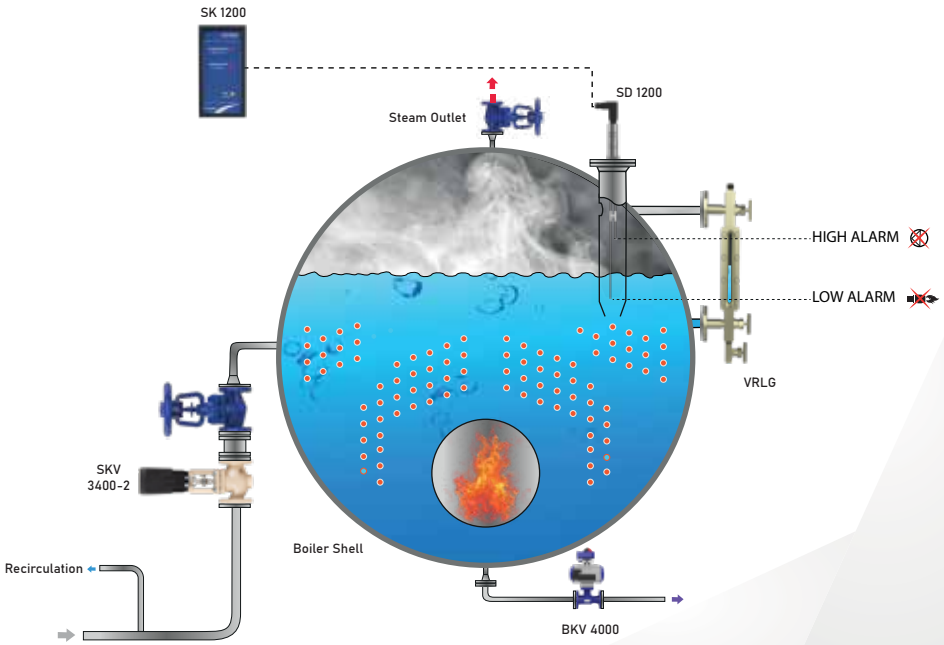
| | |
|---|---|
| **Type** | : SD 1200 |
| **Nominal Pressure** | : PN 40 |
| **Max. Operat. Temp.** | : 239 °C |
| **Max. Operat. Press.** | : 32 Bar g |
| **Connection** | : G 1" BSPT (Optional NPT) |
| **Length** | : 500, 1000, 1500 mm (can be cut to desired level) |
| **Max. Ambient Temp** | : 75 °C |
| **Compliance** | : CE (PED 2014/68/EU), EN 12952 & 12953,Type Approval (Module B + D) |

# SK 1000 Typical Installation



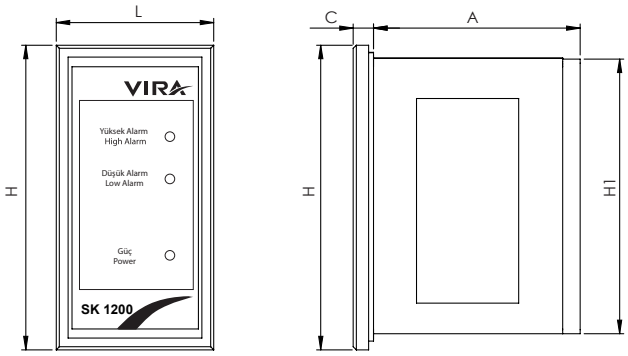



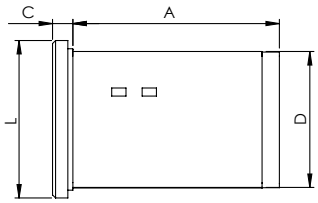



# TECHNICAL SPECIFICATION

## SK 1200 Level Alarm Controller



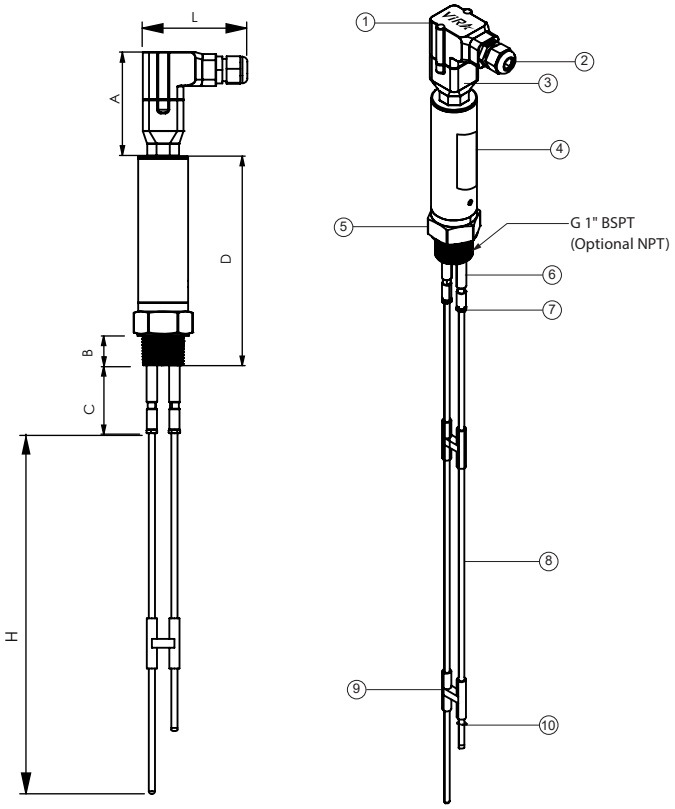

### Technical Data

| | |
|---|---|
| **Type** | SK 1200 |
| **Supply Voltage** | 230 VAC (+5% / -10%), 50/60Hz |
| **Functions** | High Level Alarm, Low Level Alarm |
| **Inputs** | Level Probe Input (2 Level ), Ground |
| **Outputs** | 2 Alarm Relays |
| **Display** | Led |
| **Label** | Lexan |
| **Max. Ambient Temp.** | 55°C |
| **Enclosure** | PA (Polyamide) |
| **Type** | Panel-mount |
| **Protection Class** | IP 40 |

### Dimensions

| H (mm) | H1 (mm) | L (mm) | A (mm) | C (mm) | D (mm) |
|---|---|---|---|---|---|
| 144 | 135 | 72 | 101 | 9 | 67 |

## SD 1200 Level Alarm Probe




| No | Part | Material |
|---|---|---|
| 1 | Upper Connector Housing | GF-PP (Glass Fiber Reinforced Polypropylene) |
| 2 | PG 11 Cable Gland | PA6 (Polyamide) |
| 3 | Lower Connector Housing | GF-PP (Glass FiberReinforced Polypropylene) |
| 4 | Label | Laser Marking |
| 5 | Probe Body | Austenitic Stainless Steel 304 |
| 6 | Tip Insulation (Sleeve) | Polytetrauoroethylene (PTFE) |
| 7 | Lock Nuts | Austenitic Stainless Steel 304 |
| 8 | Probe Tips | Austenitic Stainless Steel 316L |
| 9 | Tip Steady | Polytetrafluoroethylene (PTFE) |
| 10 | Snap Ring | C75 Spring Steel |

### Dimensions

| H (mm) | L (mm) | A (mm) | B (mm) | C (mm) | D (mm) |
|---|---|---|---|---|---|
| 500<br>1000<br>1500 | 83,5 | 83 | 23,5 | 54 | 167 |

**Note:** The probe tips are supplied in uniform lengths according to the ordered size. The lengths must be cut and adjusted on site to suit the specific application. If 500 mm is ordered, all probe tips will be delivered with a dimension 'H' of 500 mm.