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.
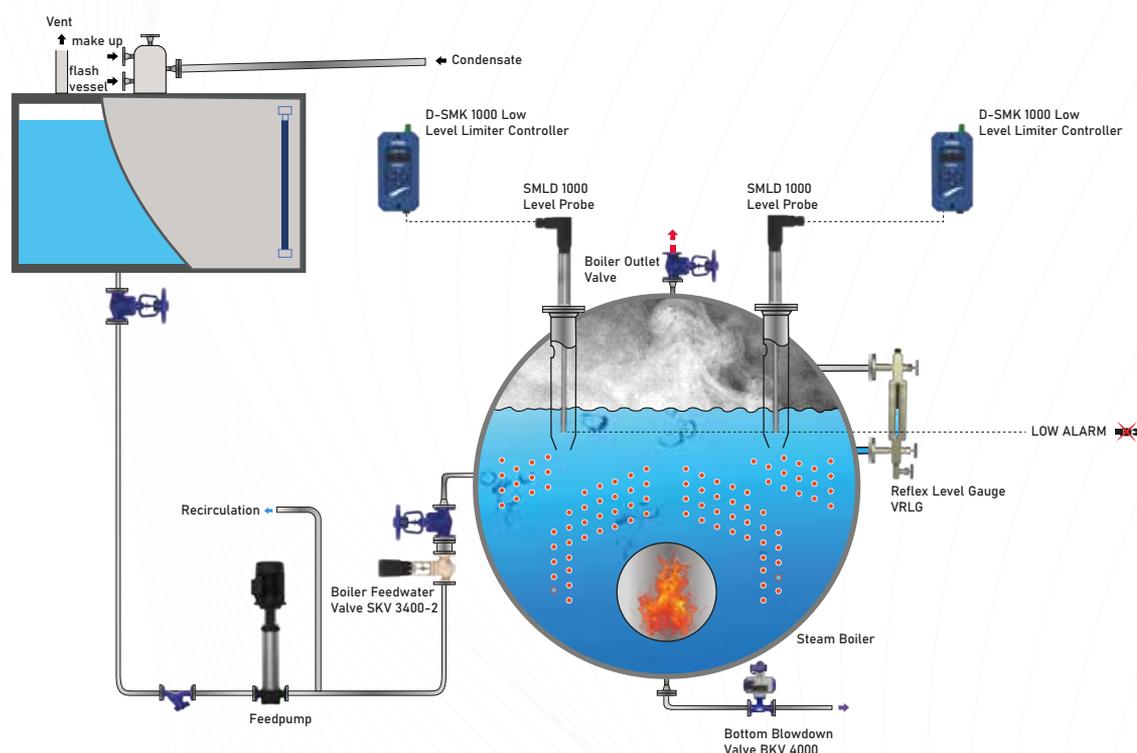
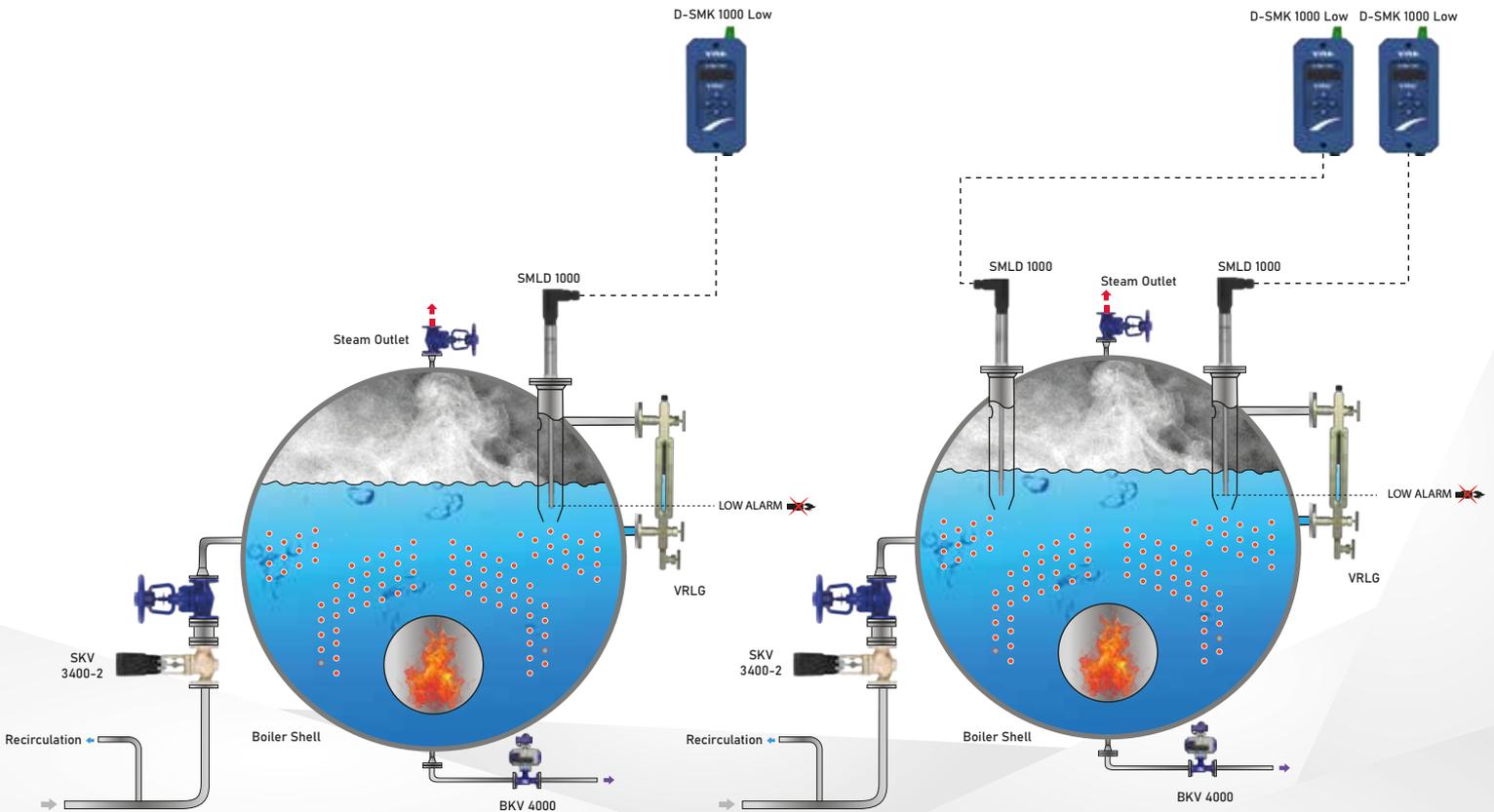# D-SML 1000 Self Monitoring Low Level Limiter System

Self Monitoring Low Level Limiter Controller

|	
Type	: D-SMK 1000 Low
Enclosure	: Panel-mount and Din Rail Type
Supply Voltage	: 24VDC
Functions	: Self Monitoring Low Level Alarm, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Outputs	: 2 Safety Relays
Max. Ambient Temp.	: 55°C
Compliance	: CE (EMC 2014/30/EU, LVD 2014/35/EU), PED 2014/68/EU, SIL (IEC 61508), EN 12952 & 12953,Type Approval (Module B + D)

Self Monitoring Low Level Limiter Probe

Type	: SMLD 1000
Nominal Pressure	: PN 40
Max. Operat. Temp.	: 239 °C
Max. Operat. Press.	: 32 Bar g
Connection	: G 1/2" 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)

D-SML 1000 Typical Installation

TECHNICAL SPECIFICATION

D-SMK 1000 Self Monitoring Low Level Limiter Controller
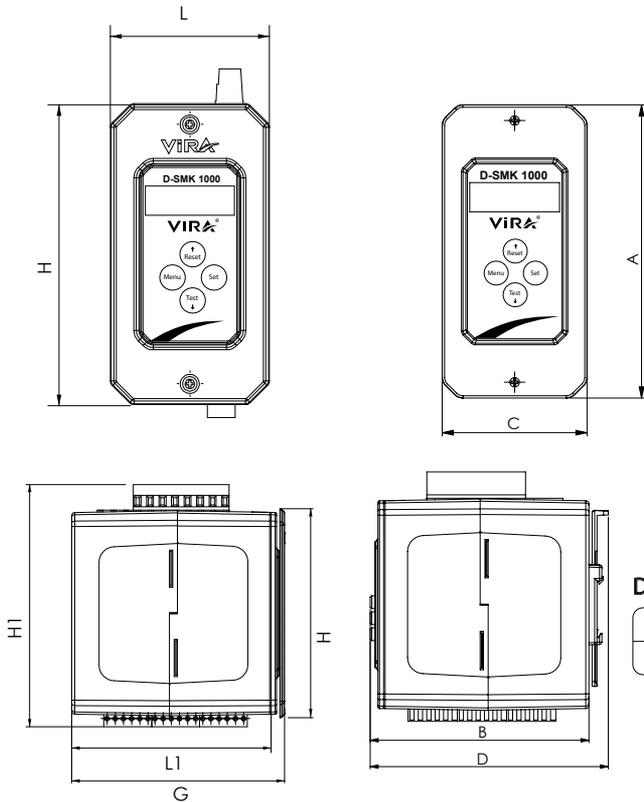
Technical Data

Type	D-SMK 1000 Low
Supply Voltage	24VDC
Functions	Self Monitoring Low Level Limiting, Test, Reset, Cable Break Check, Short Circuit Check, Probe Scale Check, Periodic Self Check
Inputs	Level Probe Input, Ground
Outputs	2 Safety Relays
Display	7 Segment
Label	Silicone Rubber
Max. Ambient Temp.	55℃
Enclosure	PC (Polycarbonate)
Type	Panel-mount and Din Rail
Protection Class	IP40

Dimensions

H (mm)	H1 (mm)	L (mm)	L1 (mm)	C (mm)	D (mm)	B (mm)	G (mm)	A (mm)
134,6	156	72	130	64	148	136	136	130

SMLD 1000 Self Monitoring Low Level Limiter Probe
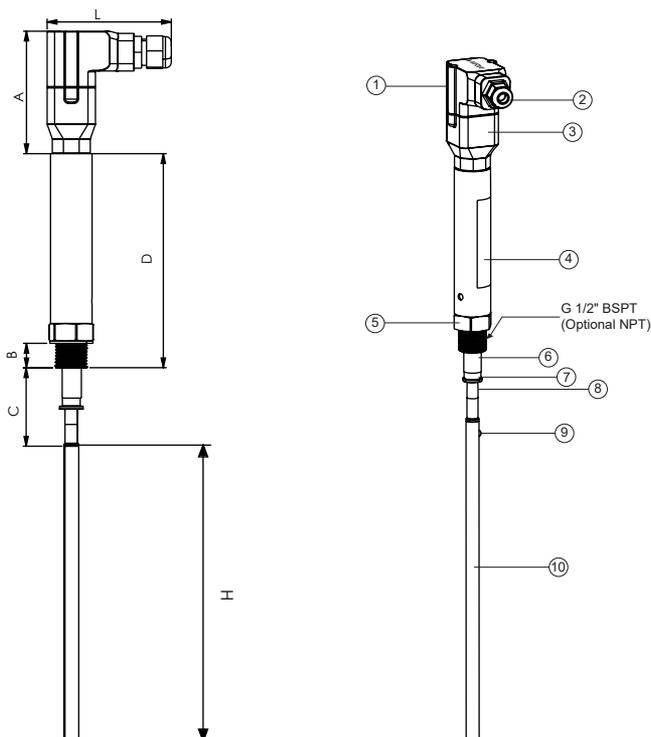
No	Part	Material
1	Upper Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
2	PG 11 Cable Gland	PA6 (Polyamide)
3	Lower Connector Housing	GF-PP (Glass Fiber Reinforced Polypropylene)
4	Label	Laser Marking
5	Probe Body	Austenitic Stainless Steel 304
6	Primary Insulator	Polytetrafluoroethylene (PTFE)
7	Comparator Tip	Austenitic Stainless Steel 316L
8	Secondary Insulator	Polytetrafluoroethylene (PTFE)
9	Retaining Bolt	Austenitic Stainless Steel 304
10	Probe Tip	Austenitic Stainless Steel 316L

Dimensions

H (mm)	L (mm)	A (mm)	B (mm)	C (mm)	D (mm)
500 1000 1500	83,5	83	16,5	53	145

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.