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EMM Issue 1

LCS3051 High Water Level Switch

Description

The level switch LCS3051 is used in conjunction with level probe LP41 as high level alarm in steam boilers and (pressurised) hot-water plants. A high level alarm prevents the water level from exceeding the preset max. water level (HW) and for this purpose switches off e.g. the feedwater supply.

The level switch LCS3051 is designed for connecting one level probe.

When the water level exceeds the MAX limit, the level probe enters the liquid and an alarm is triggered in the level switch. This switchpoint is determined by the length of the probe rod (level probe LP41).

After the de-energizing delay has elapsed, both output contacts of the level switch will open the safety circuit, e. g. for the feedwater supply. If the deactivation of the feedwater supply is interlocked in the external safety circuit, the lockout can only be deactivated when the level probe is exposed again.

An alarm will also be raised if a malfunction occurs in the level probe and/or the electrical connection. An automatic self-testing routine monitors the safety functions of the level switch. In the event of a malfunction the safety circuit opens instantaneously and switches off e. g. the feedwater supply.

Alarm and malfunction messages are indicated by LEDs, and the signal output is instantaneously energized.

An alarm can be simulated by pressing a test button.

Directives and Standards

Pressure Equipment Directive (PED) 2014/68/EU

The level switch LCS3051 in conjunction with level probe LP41 is EU type approved according to EN 12952/ EN 12953. These Directives state, among other things, the requirements made on limiting systems and equipment for steam boiler plants and (pressurised) hot-water installations.

Functional Safety acc. to IEC 61508

The level switch LCS3051 is certified according to IEC 61508 only if used in combination with level probe LP41. This standard describes the functional safety of safety-related electrical/electronic/programmable electronic systems. The equipment combination LP41 + LCS3051 corresponds to a type B subsystem with Safety Integrity Level (SIL) 2.

VdTÜV Bulletin "Wasserstand 100" (Water Level 100)

The level switch LCS3051 in conjunction with the level probe LP41 is type approved according to the VdTÜV Bulletin "Water Level 100". The VdTÜV Bulletin "Wasserstand (Water Level) 100" specifies the requirements made on water level control and limiting equipment for boilers.

LV (Low Voltage) Directive and EMC (Electromagnetic Compatibility)

The level switch LCS3051 meets the requirements of the Low Voltage Directive 2014/35/EU and the EMC Directive 2014/30/EU.

ATEX (Atmosphère Explosible)

According to the European Directive 2014/34/EU the level switch LCS3051 must not be used in potentially explosive areas.



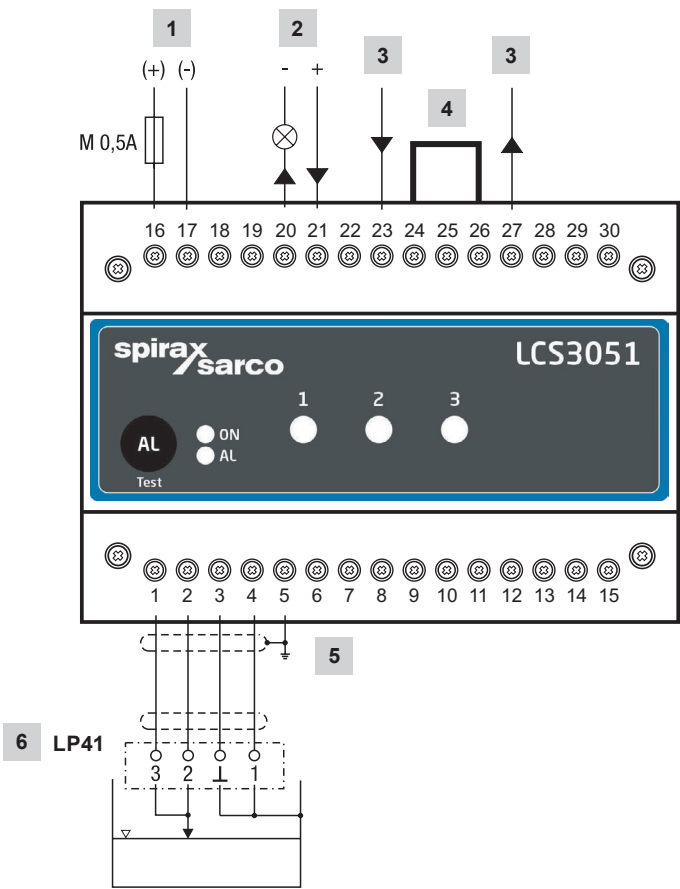
Typical Applications

- Steam boilers
- Pressurised hot-water plants

Technical data LCS3051

Supply voltage	24 Vdc +/- 20%
Fuse	External 0.5 A (semi-delay)
Power consumption	7 W
Electrical connection of level probe	1 input for level probe LP40, 4 poles, with screen
Response sensitivity (electrical conductivity of water at 25 °C)	> 10 ... < 10000 µS/cm
Safety circuit	2 volt-free make contacts, 6 A 250 Vac/30 Vdc cos φ = 1
	Delay of response: 3 seconds
	Provide inductive loads with RC combinations according to manufacturer's specification to ensure interference suppression
Signal output	1 volt-free output for instantaneous external signalling, 24 Vdc, max. 100 mA (semiconductor output)
Indicators and adjustors	1 button for test and diagnosis
	1 red/green LED for indicating the operating mode and alarm
	3 red LEDs for diagnosis
Housing	Housing material: base: black polycarbonate; front: grey polycarbonate
	Conductor size: 1 x 4.0 mm² solid per wire or
	1 x 2.5 mm² per stranded wire with sleeve to DIN 46228 or
	2 x 1.5 mm² per stranded wire with sleeve to DIN 46228
	Terminal strips can be detached
	Fixing of housing: Mounting clip on supporting rail TH 35, EN 60715
Electrical safety	Degree of contamination: 2, overvoltage category III to EN 61010-01
Protection	Housing: IP 40 to EN 60529
	Terminal strip: IP 20 to EN 60529
Weight	approx. 0.5 kg
Ambient temperature	At moment of switch on: 0 ° to 55 °C In operation: -10° to 55 °C
Transport temperature	-20 to +80 °C (<100 hours), defrosting time of the de-energized equipment before it can be put into operation: 24 hours
Storage temperature	-20 to +70 °C, defrosting time of the de-energized equipment before it can be put into operation: 24 hours
Relative humidity	max. 95%, no moisture condensation
Site altitude	max. 2000 m

Wiring diagram

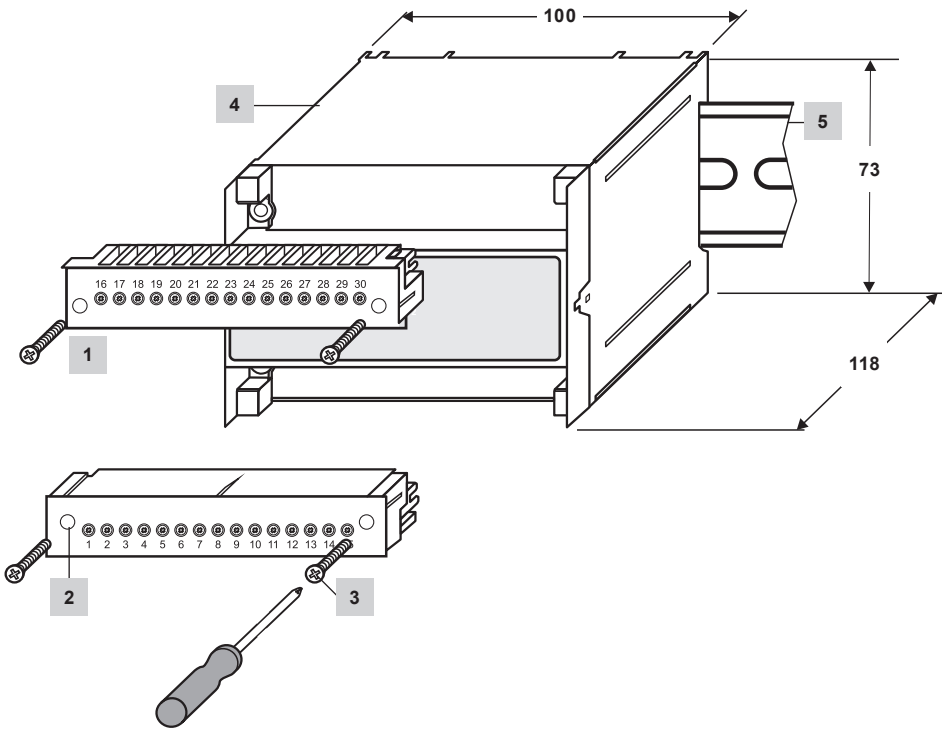


Item	
1	Power supply
2	Signal output 1 for external alarm 24 Vdc, 100mA (semiconductor output)
3	Safety circuit, input and output
4	Wire link, fitted on site, when used as high water level alarm acc. to EN 12952/EN 12953
5	CEP Central earthing point in control cabinet
6	Level probe LP41

2

Boiler house
Level controls

Dimensions (approximate) in mm



Item	
1	Upper terminal strip
2	Lower terminal strip
3	Fixing screws (cross recess head screws M3)
4	Enclosure
5	Supporting rail type TH 35, EN 60715

How to specify

High Water Level Switch for one probe, 2 volt-free make contacts for safety circuit, 1 signal output for external alarm, supply voltage 24 V DC, 7 W.

How to order

Example: 1 off Spirax Sarco LCS3051 level switch.