LCS3050
Low Water Level Switch for one probe

Description

The level switch LCS3050 is used in conjunction with level probe LP40 to limit the water level in steam boilers and (pressurised) hot-water plants. Water level limiters switch off the heating when the water level falls below the set minimum level (low water).

The level switch LCS3050 for one probe is designed for connecting one probe. A version for two probes is available as well.

When the water level falls below the low level the level probe is exposed and a low level alarm is triggered in the level switch. This switchpoint is determined by the length of the probe rod (level probe LP40). After the de-energizing delay has elapsed, the two output contacts of the level switch will open the safety circuit for the heating. The switching-off of the heating is interlocked in the external safety circuit and can only be deactivated when the level probe enters the water again.

In addition, a signal output for external signalling devices closes instantaneously.

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 in the level switch and the level probes. In the event of a malfunction the safety circuit opens instantaneously and switches the heating off.

Alarm and error messages are indicated by LEDs and a signal output is energized without delay.

An alarm can be simulated by pressing a test button.

Directives and Standards

Pressure Equipment Directive (PED) 2014/68/EU
Water level limiters are safety accessories as defined in the Pressure Equipment Directive (PED). The level switch LCS3050 in conjunction with level probe LP40 are 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 LCS3050 is certified acc. to IEC 61508 only if used in combination with level probe LP40. This standard describes the functional safety of safety-related electrical/electronic/programmable electronic systems. The equipment combination LP40 + LCS3050 corresponds to a type B subsystem with Safety Integrity Level (SIL) 3.

VdTÜV Bulletin “Wasserstand 100” (Water Level 100)
The level switch LCS3050 in conjunction with the level probe LP40 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 (ElectromagneticCompatibility)
The level switch LCS3050 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 LCS3050 must not be used in potentially explosive areas.

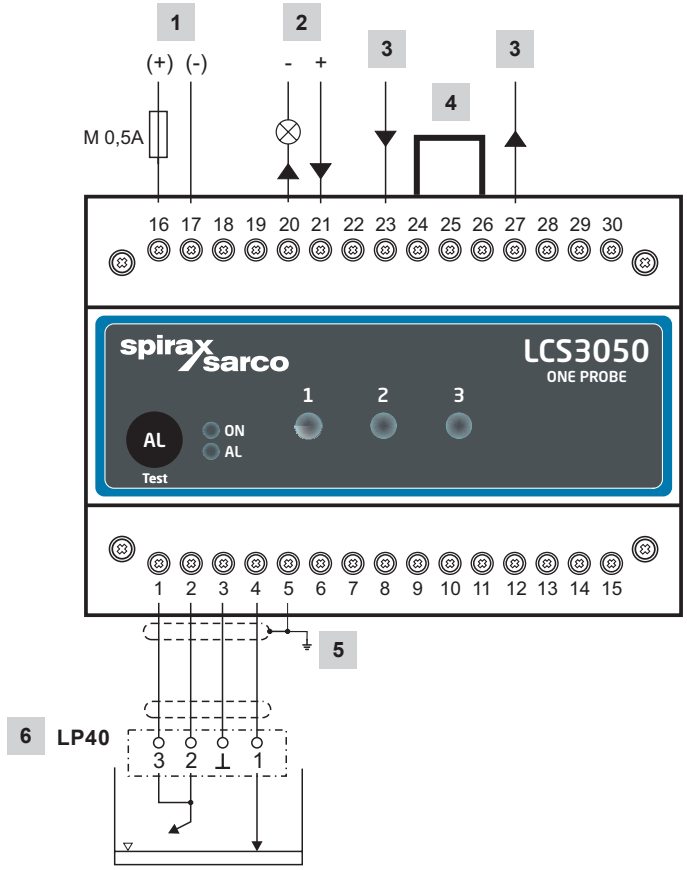
Typical Applications

- Steam boilers
- Pressurised hot-water plants

Technical data LCS3050

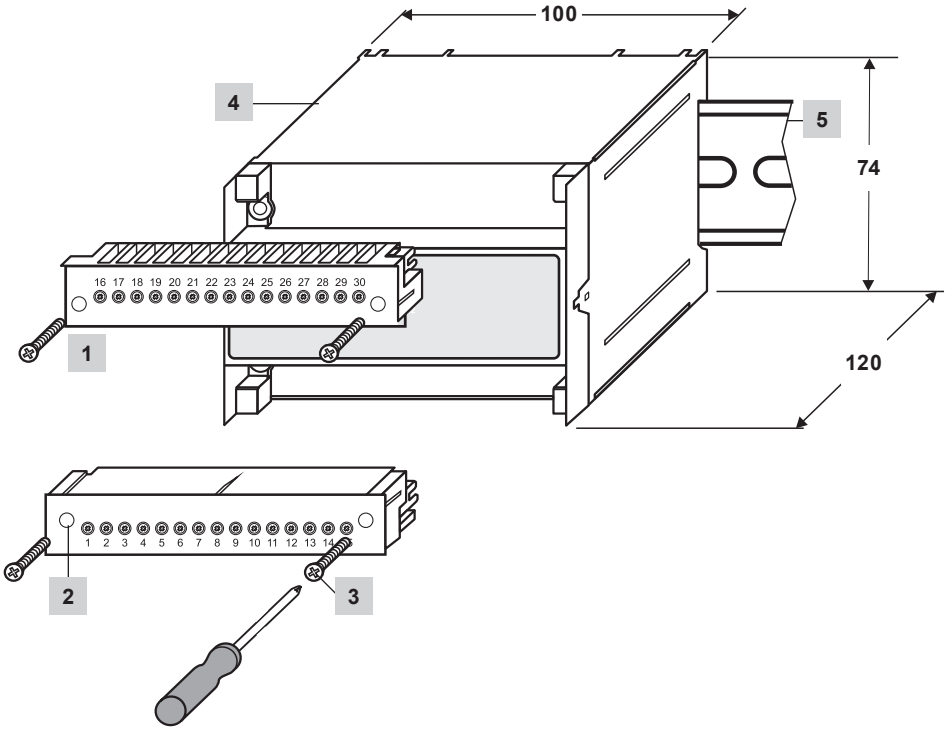
Supply voltage	24 Vdc +/- 20%
Fuse	External 0.5 A (semi-delay)
Power consumption	7 W
Electrical connection of level probe	1 input for level probe LP40, 4 poles, with screen
Response sensitivity (electrical conductivity of water at 25 °C)	> 10 ... < 10000 µS/cm
Safety circuit	2 volt-free make contacts, 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/ 1 green LED for indicating the operating mode and alarm
	3 red LEDs for diagnosis
Housing	Housing material: base: black polycarbonate; front: grey polycarbonate
	Maximum Conductor size
	Cross section of connection: 1 x 4.0 mm^2 solid per wire or
	1 x 2.5 mm^2 per stranded wire with sleeve to DIN 46228 or
	2 x 1.4 mm^2 per stranded wire with sleeve to DIN 46228
	*Please see IM for recommended cable specifications
	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	Supply voltage
2	Signal output for external alarm 24 Vdc, 100 mA (semiconductor output)
3	Safety circuit, input and output
4	Wire link, on site, when used as water level limiter according to EN 12952 / EN 12953
5	CEP Central earthing point in control cabinet
6	Level probe LP40

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

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

How to order

Example: 1 off Spirax Sarco LCS3050 level switch for one probe.