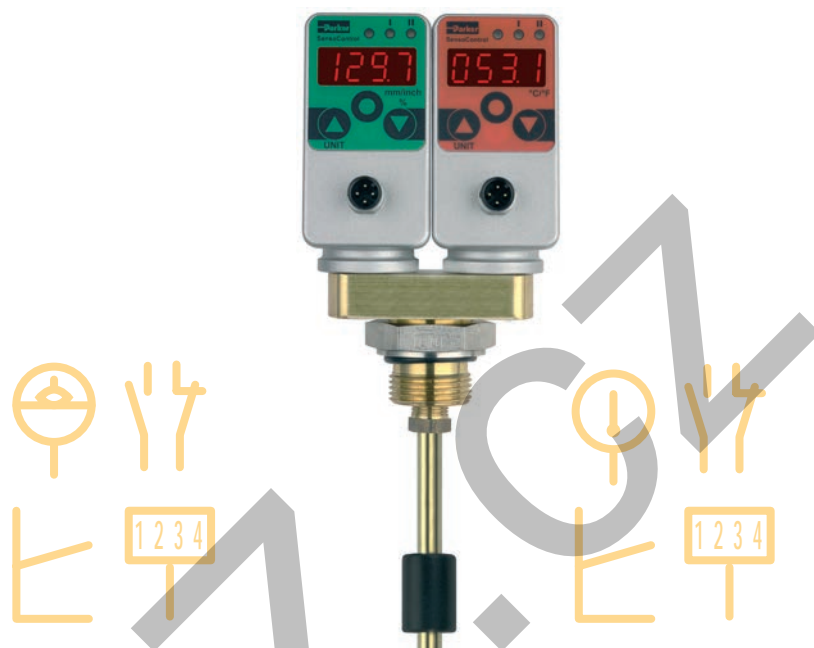


# SCLTSD LevelTempController

## Device features

- Proven measuring system
- Pivoting
- Level display
- mm / inch / % display
- High and low display
- Analogue output
- Switching outputs
- Only one hole
- No surge pipe necessary
- Replacement for several mechanical switches



With the **LevelTempController**, you can set up and display the temperature and the level individually using a common platform. When monitoring the tank, this integration of level and temperature functionality opens up many possibilities.

The **LevelTempController** combines the functions of a level and temperature switch, a level and temperature sensor and a level and temperature indicator:

- Level and temperature display (thermometer / inspection glass)
- Switching outputs
- Analogue signal

### Level

The position of the float is finely ( $\geq 5$  mm) and continuously recorded and shown in the display in mm or inch. Because the level is continuously recorded, the danger of individual mechanical contacts "sticking" no longer exists. Therefore the operational reliability of the monitored plant is greatly increased.

Using the selectable percent display, the full level is uniformly displayed for the users, independent of the tank shape. An offset can also be entered (difference from the sensor to the tank bottom) to give a realistic indication of the level from the tank bottom.

Different uses can easily be implemented or corrected at a later date using the menu-driven level switching points.

As the switching point no longer needs to be specified at the time of order, the versions of mechanical level switches required is reduced.

### Temperature

The temperature in the substance is continuously recorded and displayed. The switching outputs can be individually set up just like the LevelController. Naturally all the convenient switching functions are available: window, hysteresis function and open / close as well as an analogue output for temperature.

### Reliable and safe

Parameters can be password protected to avoid unauthorised changes.

### Universal

Thanks to these easy switching functions (hysteresis and window functions, NC or NO functions), intelligent adjustments can be set on the LevelTempController which are normally not possible using a mechanical level switch. Therefore, many switches can be replaced with one controller. With the optional analogue outputs, the level and temperature can be monitored easily with a controller.

Level: e.g. for leakage monitoring

Temperature: e.g. coolers, heating, alarm, shutdown

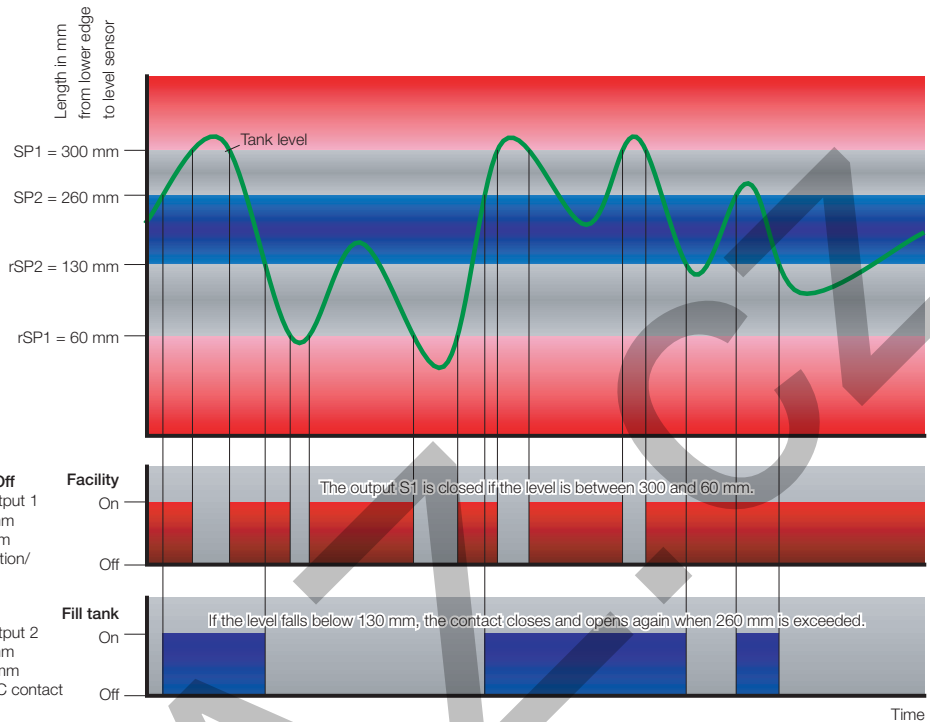
# SCLTSD LevelTempController

## Application examples

### SCLSD



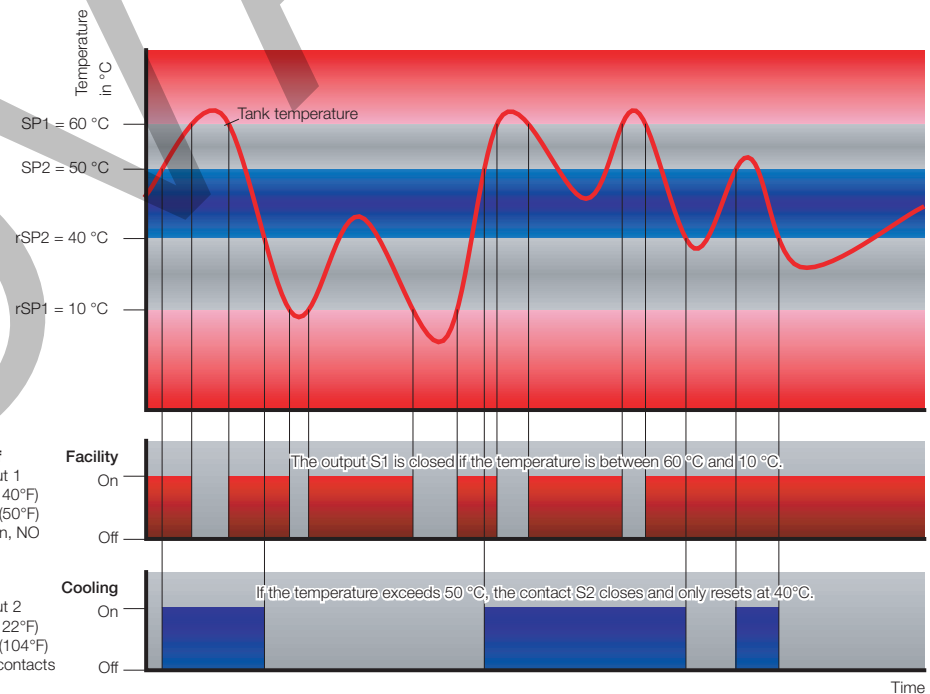
Application example  
Refer to page 70



### SCTSD



Application example  
Refer to page 54



# SCLTSD LevelTempController

## Device features

### Everything at a glance

- Sloped display
- Digital display
  - Large
  - Illuminated
  - Switching points
- Display level
  - mm, inch, or %
  - Actual level
  - High and low display
- Temperature display
  - °C, °F
  - Current temperature

### Rugged

- Metal housing
- Waterproof
- Excellent interference immunity
- Vibration proof
- Shock proof

### Variable installation

- A coupling hole
- Compact size
- 290° pivotable
- G3/4 BSPP
- DIN flange

### Programming module

- Adjustable with ControllerWIN Software



### Optical interface

- Switch status is shown

### Easy to use

- 3 large buttons
- Display of the unit

### Connect as required

- 2 switching outputs
- Analogue output
- 0...20 or 4...20 mA
- Freely programmable
- Scalable
- M12 connecting plugs



### Twin concept

- 2 in 1

### No surge pipe necessary

- Electronic attenuation adjustable attenuation

### Level

- Proven measuring system
- High float dynamics
- Small design
- Universal usage

### Temperature sensor

- Integrated in the rod end

# SCLTSD LevelTempController

## Technical data

Electrical connection	
Supply voltage $V_+$	15...30 VDC nominal 24 VDC; Protection class 3
Electrical connection	M12x1; 4-pole; 5-pole; with gold-plated contacts
Short-circuit protection	Yes
Protection against wrong insertion	Yes
Overload protection	Yes
Current consumption	< 100 mA
Housing	
	Adjustable direction to 290°C
Material	Die-cast zinc Z 410; painted
Foil material	Polyester
Display	4-digit 7-segment LED; red; digit height 9 mm
Protection degree	IP67 DIN EN 60529
Ambient conditions	
Ambient temperature range	-20...+85 °C / (-4...185°F)
Temperature range of substance	≤ 80 °C / (≤ 176°F)
Storage temperature range	-40...+100 °C / (-40...212°F)
EM compatibility	
Disturbance emissions	EN 61000-6-3
Resistance to interference	EN 61000-6-2
Outputs	
Switching outputs	Two MOSFET high-side switches (PNP)
Contact functions	NO / NC contact; window / hysteresis function freely adjustable
Switching voltage	$V_+ - 1.5$ VDC
Switching current max.	0.5 A per switch
Short-circuit current	2.4 A per switch
Analogue output	0/4 to 20 mA; programmable; freely scalable $RL \leq (V_+ - 8 \text{ V}) / 20 \text{ mA} (\leq 500 \Omega)$

## Level

Input parameters	
Measuring component	Resistance reed chain with float
Connector thread	G3/4 BSPP; nickel-plated brass; ED soft seal NBR*
Parts in contact with substances	Brass; nickel-plated brass; NBR*
Temperature range of substance	≤ 80 °C / (≤ 176°F)
Output values	
Switching point accuracy	± 1 % FS at 25 °C / (77°F)
Display accuracy	± 1 % FS ± 1 Digit at 25 °C / (77°F)
Response speed	≤ 700 ms
Resolution	7.5 mm
Float	
Material	NBR
Dimensions	Ø 18 mm, Length 35 mm
Viscosity	Max. 250 cSt at 25 °C / (77°F)
Density	at least 0.750 g/cm³
Level rod	
Material	Stainless steel
Dimensions	Ø 8 mm
Operating pressure	1 bar

## Temperature

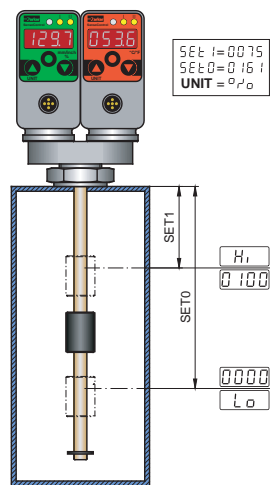
Output values	
Switching point accuracy	± 0.35 % FS at 25 °C / (77°F)
Display accuracy	± 0.35 % FS ± 1 Digit at 25 °C / (77°F)
Response speed	≤ 300 ms
Analogue output	0/4...20 mA; programmable; freely scalable; 4...20 mA = -40...125 °C / (-40...257°F)

\* different sealing material (FKM, EPDM etc.) upon request

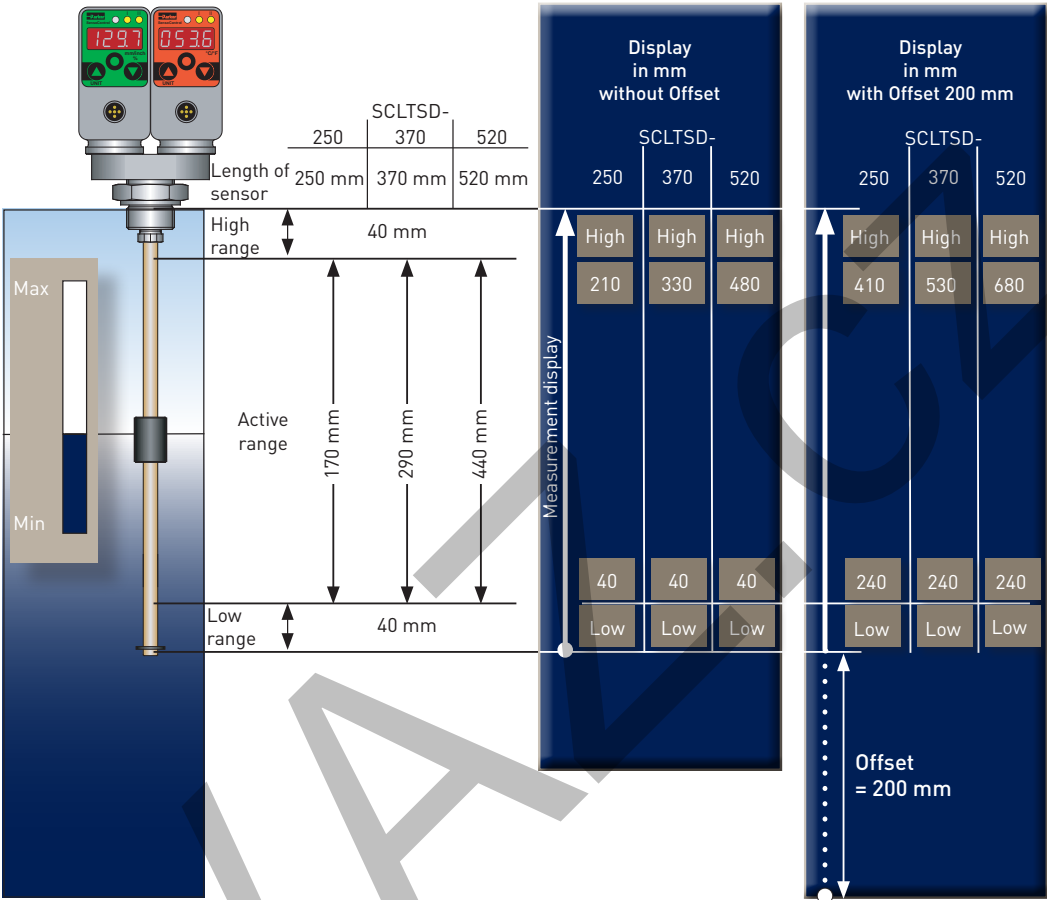
# SCLTSD LevelTempController

## Display possibilities

### Example of a percent display



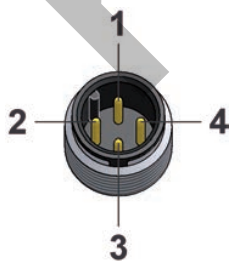
### Example of a mm display



L1 Sensor length Measurement range	L2 active range	Display reso- lution Increment size	Increment size	Lowest reset switch point RSP	Largest switch- ing value SP	Smallest adjustable difference between SP and RSP (SP-RSP)
250 mm	40...210 mm	1 mm	5 mm	40 mm	210 mm	5 mm
370 mm	40...330 mm	1 mm	5 mm	40 mm	330 mm	5 mm
520 mm	40...480 mm	1 mm	5 mm	40 mm	480 mm	5 mm
800 mm	40...760 mm	1 mm	10 mm	40 mm	760 mm	10 mm
1000 mm	40...960 mm	1 mm	10 mm	40 mm	960 mm	10 mm

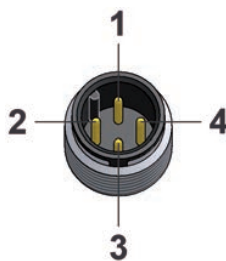
## Pin assignment

SCLTSD-xxx-00-07 for temperature and level  
2 switching outputs; M12x1; 4-pole



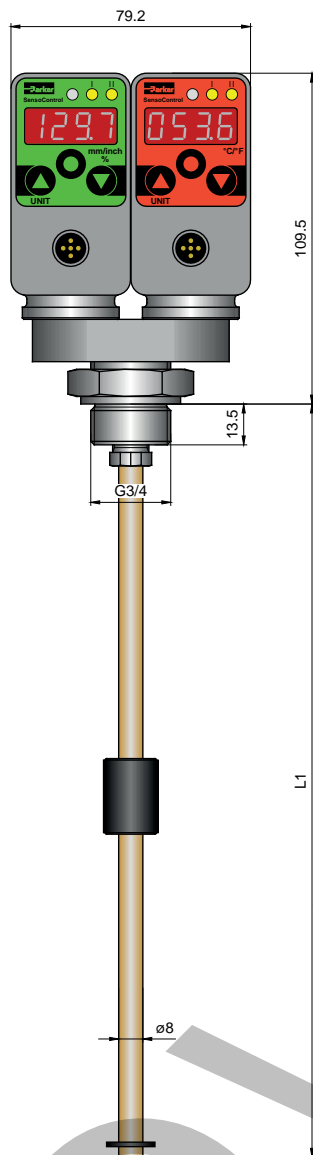
PIN	Assignment
1	V <sub>+</sub>
2	S2 out
3	0 V / GND
4	S1 out

SCLTSD-xxx-10-07 for temperature and level  
1 switching output, 1 analogue output, M12x1; 4-pole



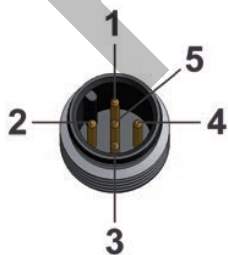
PIN	Assignment
1	V <sub>+</sub>
2	Analogue out
3	0 V / GND
4	S1 out

# SCLTSD LevelTempController



L1 = length of the sensor (mm)  
L2 = active range (mm)

**SCLTSD-xxx-10-05** for temperature and level  
2 switching outputs, 1 analogue output; M12x1; 5-pole



PIN	Assignment
1	V <sub>+</sub>
2	S2 out
3	0 V / GND
4	S1 out
5	Analogue out

## Order code

### SCLTSD LevelTempController

**2 switching outputs;**

**2 switching outputs Marine;**

(approved by DNV/GL/ABS)

**no analogue output**

M12x1 connecting plug; 4-pole

**SCLTSD-xxx-00-07**

**SCLTSD-xxx-00-07-MA**

**1 switching output;**

**1 switching output Marine;**

(approved by DNV/GL/ABS)

**with analogue output**

M12x1 connecting plug; 4-pole

**SCLTSD-xxx-10-07**

**SCLTSD-xxx-10-07-MA**

**2 switching output;**

**2 switching output Marine**

(approved by DNV/GL/ABS)

**with analogue output**

M12x1 connecting plug; 5-pole

**SCLTSD-xxx-10-05**

**SCLTSD-xxx-10-05-MA**

### Installation length (L1 mm)

250 mm	250
370 mm	370
520 mm	520
800 mm	800
1000 mm	1000

## Accessories

**PC Programming Kit**

**SCSD-PRG-KIT**

**Flange adapter**

**SCAF-3/4-90**

6-hole connection DIN 24557, part 2

## Connection cable and single plug

**Connection cable, assembled**

**SCK-400-xx-xx**

(open cable end)

### Cable length (m)

2 m	02
5 m	05
10 m	10

### Connecting plug

M12 cable jack; straight

45

M12 cable jack; 90° angled

55

### Single connector

M12 cable jack; straight

**SCK-145**

M12 cable jack; 90° angled

**SCK-155**