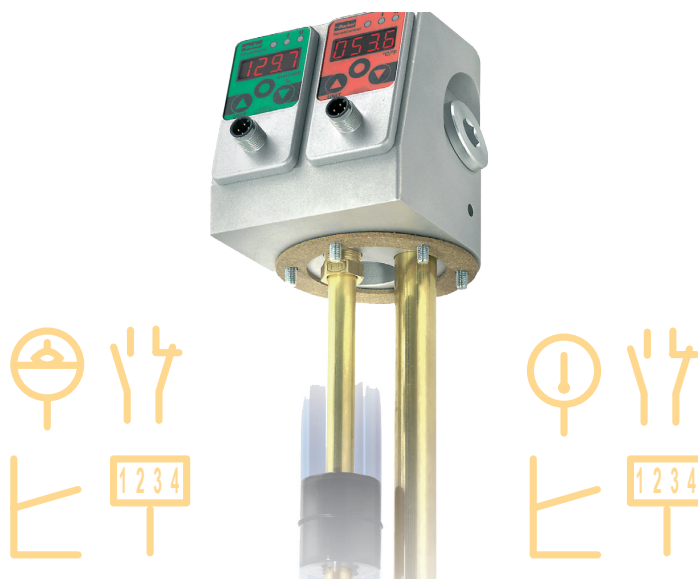# SCOTC OilTankController

## Device features

- Proven measuring system
- Level and temperature display
- mm / inch / % display
- High and low display
- Only one hole
- Continuous level measurement
- Connection
  - Filling coupling
  - Air filter
  - Low pressure
- No surge pipe necessary



In addition to the **LevelTempController**, the **OilTankController** also offers standardised connections for an air filter and a fill coupling.

When monitoring the tank for series use, this integration of level and temperature functionality together with air filter and fill adapter port opens up many possibilities. An additional connecting hole is required for the four functions.

**The OilTankController combines the functions of a level and temperature switch, a level and temperature sensor and a level and temperature display:**

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

### Level

The position of the float is finely (≥ 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

In combination with the comfortable switch functions like hysteresis and window function, open/close contact functions **LevelTempController** intelligent settings can be made which are not possible with a mechanical level/temperature 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

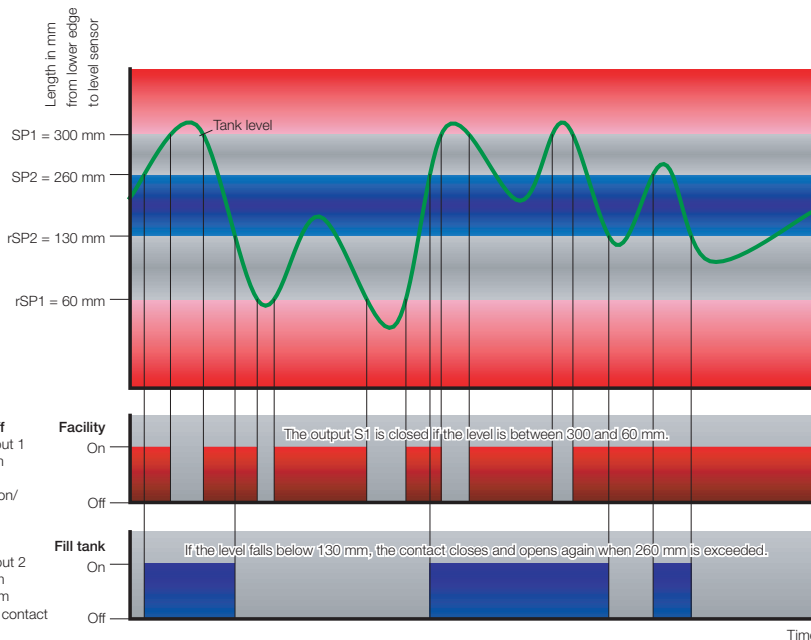Temperature: e.g. coolers, heating, alarm, shutdown

**The Controller Family**

# SCOTC OilTankController

## Application examples

### SCLSD

Length in mm from lower edge to level sensor

SP1 = 300 mm
SP2 = 260 mm
rSP2 = 130 mm
rSP1 = 60 mm

Tank level

**Facility On/Off**
Switching output 1
SP1 = 300 mm
rSP1 = 60 mm
Window function/
NO contact

**Facility**
On
Off

The output S1 is closed if the level is between 300 and 60 mm.

**Fill tank**
Switching output 2
SP2 = 260 mm
rSP2 = 130 mm
Hysteresis NC contact

**Fill tank**
On
Off

If the level falls below 130 mm, the contact closes and opens again when 260 mm is exceeded.

Time

Application example
Refer to page 84

### SCTSD

Temperature in °C

SP1 = 60°C
SP2 = 50°C
rSP2 = 40°C
rSP1 = 10°C

Tank temperature

**Facility On / Off**
Switching output 1
SP1 = 60 °C/
rSP2 = 10 °C
Window function, NO
contact

**Facility**
On
Off

The output S1 is closed if the temperature is between 60 °C and 10 °C.

**Cooling**
Switching output 2
SP2 = 50 °C/
rSP2 = 40 °C
Hysteresis/NO contact

**Cooling**
On
Off

If the temperature exceeds 50 °C, the contact S2 closes and only resets at 40°C.

Time

Application example
Refer to page 68

# SCOTC OilTankController

## Device features

**6-hole standard for**
- Ventilation filter*
  (DIN 24557, part 2)
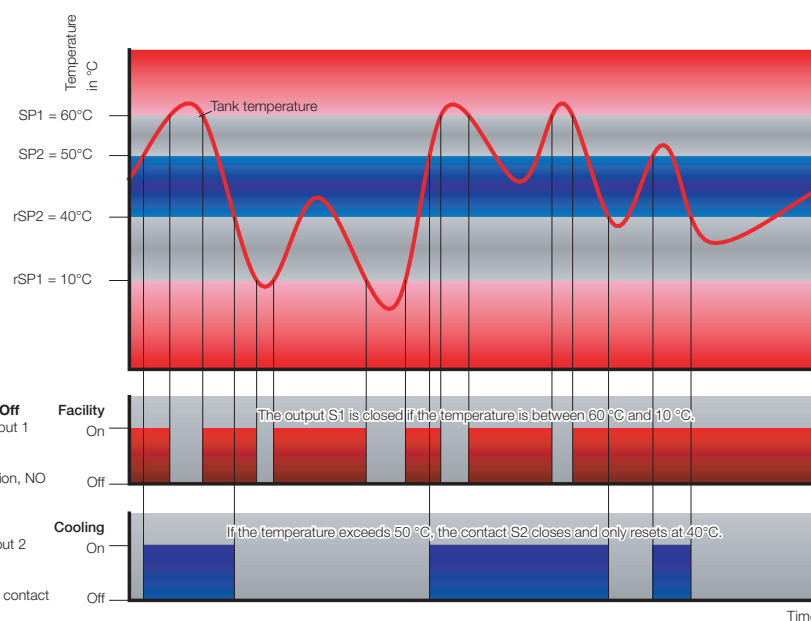
**Getting to the point**
- Compact construction (4 in 1)
- Easy adjustment of the switching points using the menu
- Analogue output
- Safety control
- Cost savings in the logistics, assembly and maintenance

**G3/4 BSPP for**
- Filling coupling*

**Level and temperature**
- Display
- Adjustable switching output
- Analogue output

**G1/8 BSPP for**
- Low pressure switch*
- Clogging indicator*

**The extended version**
with safety control
- Additional fixed switching contacts
- Level min/max
- Temperature too high

**6-hole standard for**
- Tank connection
  (DIN 24557, part 2)

**Real fill level**
- The level controller continuously measures the position of the float and continuously shows the position in the display.
- Up to 1000 mm

**Filling tube**

**No surge pipe necessary**
- Electronic attenuation adjustable attenuation

**No whirl-up**
- Whirl-up protection

**Temperature sensor**
- Integrated in the rod end

**Programming module**
- Adjustable with ControllerWIN Software
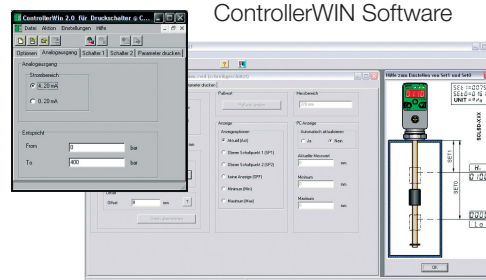
* Venting filter, filling coupling, low pressure switch and clogging indicator are not included in the delivery.

**The Controller Family**

Catalogue 4083/UK

# SCOTC OilTankController

## Technical data

| SCOTC | 250 | 370 | 520 | 800 | 1000 |
|---|---|---|---|---|---|
| Tank installation length | 250 mm | 370 mm | 520 mm | 800 mm | 1000 mm |
| Adjustment range | 40...210 mm | 40...330 mm | 40...480 mm | 40...760 mm | 40...960 mm |

### Electrical connection

| | |
|---|---|
| Supply voltage $V_+$ | 15 to 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

| | |
|---|---|
| Material | Die-cast zinc Z 410; painted Aluminium |
| 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...+80 °C |
| Temperature range of substance | ≤ 80 °C |
| Storage temperature range | -40...+100 °C |
| Sampling period | 300 ms |
| Display refresh | 1 s |

### 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 |

### Optional analogue output

| | |
|---|---|
| Measuring range | 0/4...20 mA; programmable |
| Response speed (0 to 95%) | ≤ 300 ms |
| Error | ± 1 % FS |
| Load | ≤ 500 Ω from $V_b$ > 18 VDC |

### Level

#### Input variables

| | |
|---|---|
| Measuring component | Reed chain resistance |
| Connector thread | 6 hole standard-DIN 24557, part 2 |

#### Output variables

| | |
|---|---|
| Switching point accuracy | ± 1 % FS at 25 °C |
| Display accuracy | ± 1 % FS ± 1 Digit at 25 °C |
| Response speed | ≤ 700 ms |
| Resolution | 5 mm...520 mm; 10 mm > 520 mm |

#### Float

| | |
|---|---|
| Material | Polypropylene |
| Dimensions | Ø 35 mm, Length 40 mm |

#### Level rod

| | |
|---|---|
| Material | Brass |
| Dimensions | Ø 12 mm |
| Operating pressure | 1 bar max. |

#### Optional Lo-Hi contact (S3 out)

| | |
|---|---|
| Alarm contact | In series switched Lo and Hi NC contact |
| Maximum load current | 0.7 A |

### Temperature

#### Input variables

| | |
|---|---|
| Sensor element | PT1000 |
| Filling tube | Ø 18x1 mm |
| Response time | $\tau_{0.9} = 60$ s |

#### Output variables

| | |
|---|---|
| Switching point accuracy | ± 0.5 % FS at 25 °C |
| Display accuracy | ± 0.5 % FS ± 1 Digit at 25 °C |
| Response speed | ≤ 300 ms |
| Analogue output | 0/4...20 mA; programmable; freely scalable; 4...20 mA = -40...125 °C |

#### Optional temperature switch (S3 out)

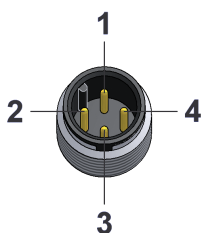| | |
|---|---|
| Alarm contact with > 65 °C | Open contact |
| Maximum charging current | 0.7 A |

# SCOTC OilTankController

## Pin assignment

### Without safety-control-output

**SCOTC-xxxx-00-07**

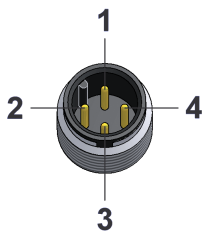for temperature and level

2 switching outputs
M12x1; 4-pole

| PIN | Assignment |
|-----|-----------|
| 1 | $V_+$ |
| 2 | S2 out |
| 3 | 0 V / GND |
| 4 | S1 out |

**SCOTC-xxxx-10-07**

for temperature and level

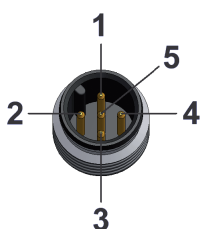1 switching outputs, 1 analogue output
M12x1; 5-pole

| PIN | Assignment |
|-----|-----------|
| 1 | $V_+$ |
| 2 | Analogue out |
| 3 | 0 V / GND |
| 4 | S1 out |

**SCOTC-xxxx-10-05**

for temperature and level

2 switching outputs, 1 analogue output
M12x1; 5-pole

| PIN | Assignment |
|-----|-----------|
| 1 | $V_+$ |
| 2 | S2 out |
| 3 | 0 V / GND |
| 4 | S1 out |
| 5 | Analogue out |

### With safety-control-output

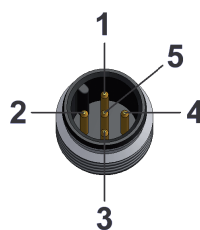**SCOTC-xxxx-00-05**

Level:

Two variable switching outputs,
One fixed safety-control-output level min/max;
M12x1; 5-pole

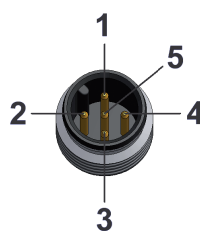| PIN | Assignment |
|-----|-----------|
| 1 | $V_+$ |
| 2 | S2 out |
| 3 | 0 V / GND |
| 4 | S1 out |
| 5 | S3 out (L-Low / L-High) |

**SCOTC-xxxx-00-05**

Temperature:

Two variable switching outputs,
One fixed safety-control-output temperature max. 65 °C
M12x1; 5-pole

| PIN | Assignment |
|-----|-----------|
| 1 | $V_+$ |
| 2 | S2 out |
| 3 | 0 V / GND |
| 4 | S1 out |
| 5 | S3 out (T-High) |

| L1 Sensor length Measurement range | L2 active range | Display resolution increment size | Increment size | Lowest reset switch point RSP | Largest switching value SP | Smallest adjustable difference between SP and RSP (SP-RSP) |
|---|---|---|---|---|---|---|
| 250 mm | 170 mm | 1 mm | 5 mm | 40 | 210 | 5 mm |
| 370 mm | 290 mm | 1 mm | 5 mm | 40 | 330 | 5 mm |
| 520 mm | 440 mm | 1 mm | 5 mm | 40 | 480 | 5 mm |
| 800 mm | 720 mm | 1 mm | 10 mm | 40 | 760 | 10 mm |
| 1000 mm | 920 mm | 1 mm | 10 mm | 40 | 960 | 10 mm |

*The Controller Family*

# SCOTC OilTankController
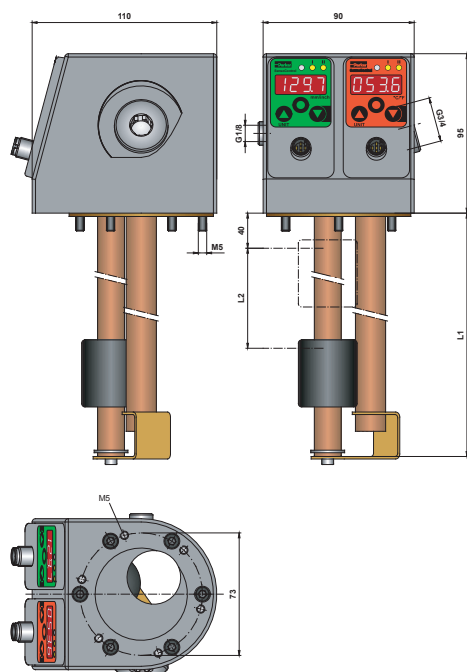


L1 = length of the sensor (mm)
L2 = active range (mm)

## Order code

**SCOTC OilTankController \***

**2 switching outputs; no analogue output   SCOTC-xxxx-00-07**
M12x1 connecting plug; 4-pole

**2 switching outputs; with analogue output  SCOTC-xxxx-10-07**
M12x1 connecting plug; 4-pole

**1 switching output; with analogue output  SCOTC-xxxx-10-05**
M12x1 connecting plug; 5-pole

**3 switching outputs; no analogue output  SCOTC-xxxx-00-05**
M12x1 connecting plug; 5-pole
with safety control

**Length (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** |

## 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** |

\*  Venting filter, filling coupling, low pressure switch and clogging indicator are not
   included in the delivery.

![Parker](Parker logo)