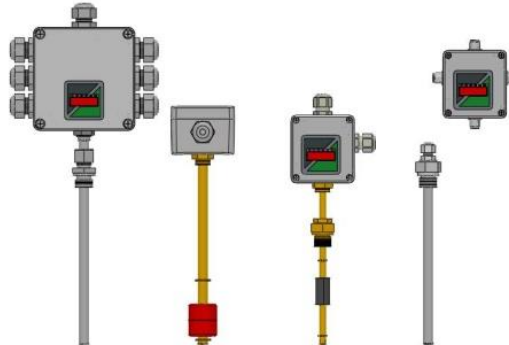


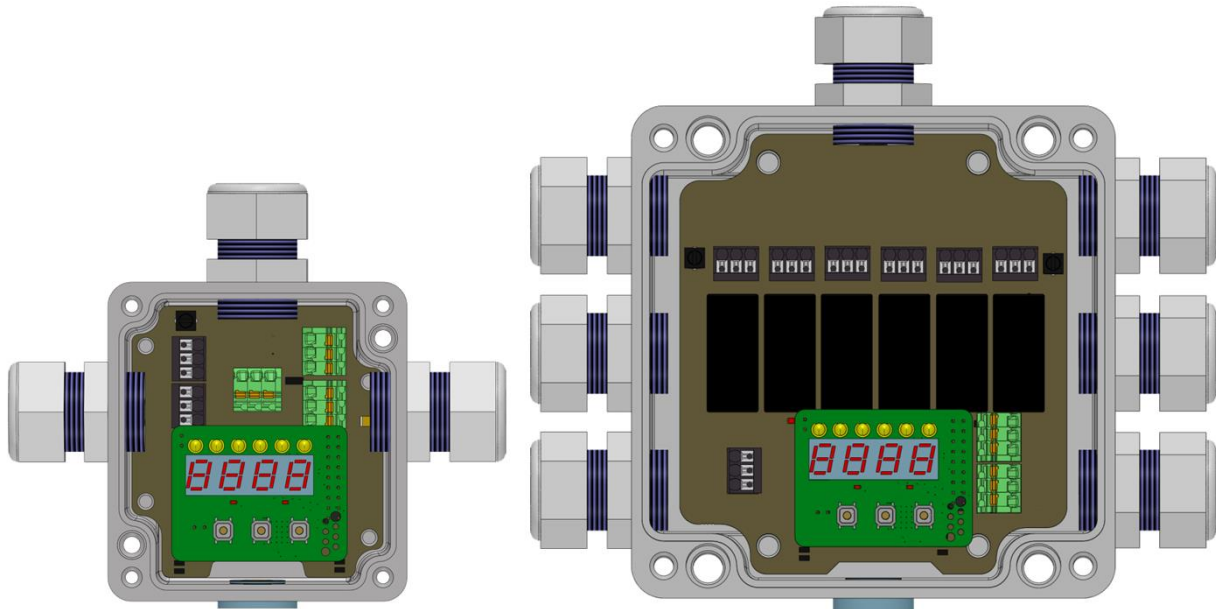
Operating instructions UTS



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1 Controller view



2 General device description

The UTS is an electronic temperature switch with variable hysteresis based on a calibrated, digital temperature sensor. The compact sensor is connected to the evaluation unit and the display in the sensor tube by means of an electrical cable. The sensor tube is therefore very compact in size and extremely flexible in terms of installation. The electronics are housed in a sturdy die-cast aluminum housing, which corresponds to protection class IP 65 when installed correctly.

Devices with terminal connection as well as with standardized plug connectors are available. Special designs are possible according to customer requirements and specifications.

The UTS is available with 1-6 temperature channels as the UTS-1 variant or as a combination of temperature channels and level switching points with a total of up to 8 channels in the UTS-2 variant. Continuous level detection and analog temperature measurement are also available with the UTS-2. All possible combinations can be found in table 1. A 7-segment display is included in every version. This shows the current ACTUAL temperature and is required for parameterization. When the set temperature switching point is reached, it is indicated by the corresponding status LED. Adjustment is not possible when the housing is closed. The operating voltage for the UTS with small housings is 24 volts; the variant with 230 V operating voltage can be configured for large housings.

The UTS is set using three buttons and a four-digit 7-segment display underneath the housing cover. This allows all parameters per channel such as switching temperature, hysteresis and the switching behavior of the relays to be set separately and independently of each other. For maximum flexibility and safety, each power relay is designed with selectable switching behavior and as a changeover contact. During commissioning, you can decide whether a relay should pick up or drop out when activated and whether the contact should then open or close. This setting can be changed at any time.

UTS-1 devices can be installed in any position. For UTS-2 devices, the maximum inclination from the vertical is 30°

For correct evaluation, the temperature sensor must have a minimum immersion depth of 40 mm in the medium.

3 Intended use

The permissible temperatures and pressures must be observed in accordance with the technical data. If you are unsure about the media resistance, please contact Engler. The devices are intended for commercial use only.

4 Safety instructions

ENGLER appliances are built to the current state of the art in terms of operational safety and comply with the required regulations and EC directives. Nevertheless, there are residual risks. Improper or unintended use of these devices can result in indirect hazards. For this reason, the installation, electrical connection, commissioning, operation and maintenance of the measuring devices must only be carried out by trained and instructed specialist personnel who are authorized to do so by the system operator. The qualified personnel must have read and understood the operating instructions and follow the instructions contained therein. Modifications and repairs to the device may only be carried out if this is expressly permitted in the operating instructions or expressly authorized by Engler. Engler accepts no liability for damage caused by non-compliance with regulations.

- The specialist personnel must be adequately trained.
- The metrological and safety requirements of the measuring points must be complied with.
- The operator is responsible for proper installation and operation

During parameterization, testing and maintenance work on the device, operational and process safety must be guaranteed at all times. If necessary, alternative monitoring measures must be taken.

Various plug and connection types are available depending on the design of the appliance. Attention must be paid to the individually permissible maximum switching capacity and appropriate protective devices must be provided.

Power supply according to EN50178, SELV, PELV

A protective circuit must be provided for inductive and capacitive loads.

The switching capacities of the reed contacts specified in the data sheet must be observed.

5 Installation

The device consists of two or, in the case of devices with a separate housing, three separable components.

- Devices with a process connection are attached directly to the container to be monitored using the selected connection type. Before filling the tank, all screw connections must be checked for leaks.
 - For devices with a remote housing, the housing can be wall-mounted. The sensor is attached to the container to be monitored using a process connection. The supply line from the housing to the sensor is 1.5 meters. Before filling the container, all screw connections must be checked for leaks.
- ➔ For temperature-only devices (UTS-1), the installation position is optional.
- ➔ For appliances with floats (UTS-2) note max. inclination 30°C

6 Electrical connection & commissioning:

6.1 Devices with spring terminals

- Opening the housing
- Insert cables
- Close cable gland
- Disconnect cable and connect according to designation / wiring diagram
- Spring terminals are opened by pressing the release button
- Supply the device with power
- Set and check the desired parameters
- Close the housing again when de-energized, making sure that the display, the cover and the seal are correctly seated

6.2 Devices with plug connectors:

- Connect on-site cables to the UTS correctly using plug connectors.
- Protection classes of the connectors must be selected according to the application and environmental conditions.
- When connecting, ensure correct fit and tightness.
- Open the housing and supply the device with power
- Set and check the desired parameters
- Close the housing again when de-energized, making sure that the display, the cover and the seal are correctly seated

The housing cover may only be removed for commissioning the appliance. Operation with the housing open is not permitted.

The optional stainless steel immersion sleeve has a G1/2" thread and can be permanently installed at the intended location.

The sensor itself can then be aligned and screwed to the immersion sleeve using the union nut so that the digital display and status LEDs are optimally positioned in the viewing area.

In the event of a device defect, the thermowell can remain in the tank and the device can be easily replaced without having to drain the liquid.

7 Controller operating instructions

Commissioning:

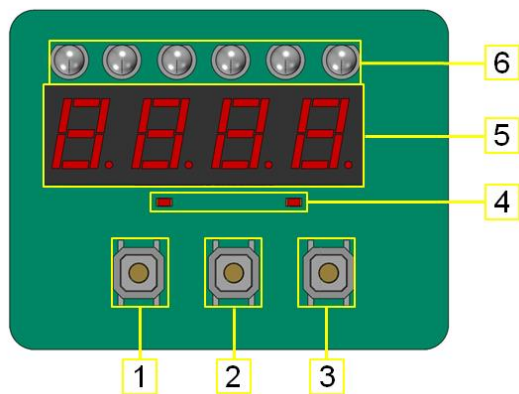
As soon as the new device is supplied with power, the device switches to operating mode and starts with the factory settings. When the device is restarted, it starts with the parameters already set from the non-volatile memory.

After information on the type and software version, the display shows the current measured value.

Operating structure

- View parameters
- Set parameters
- ❖ Advanced functions

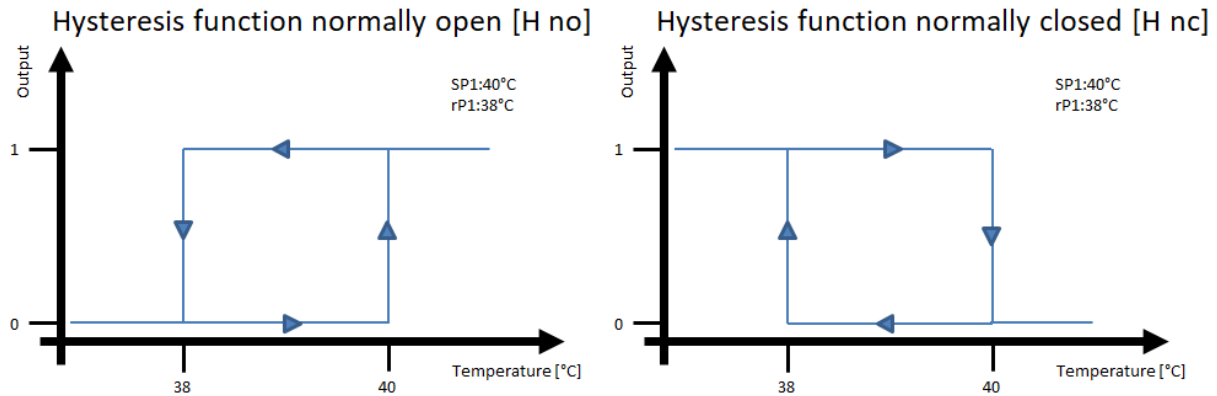
Navigation and visualization:



- 1 Button „-“
- 2 Button „Enter“
- 3 Button „+“
- 4 2x status LED programming mode (flashes when saving parameters)
- 5 4-digit 7-segment display
- 6 6x status LED switching points

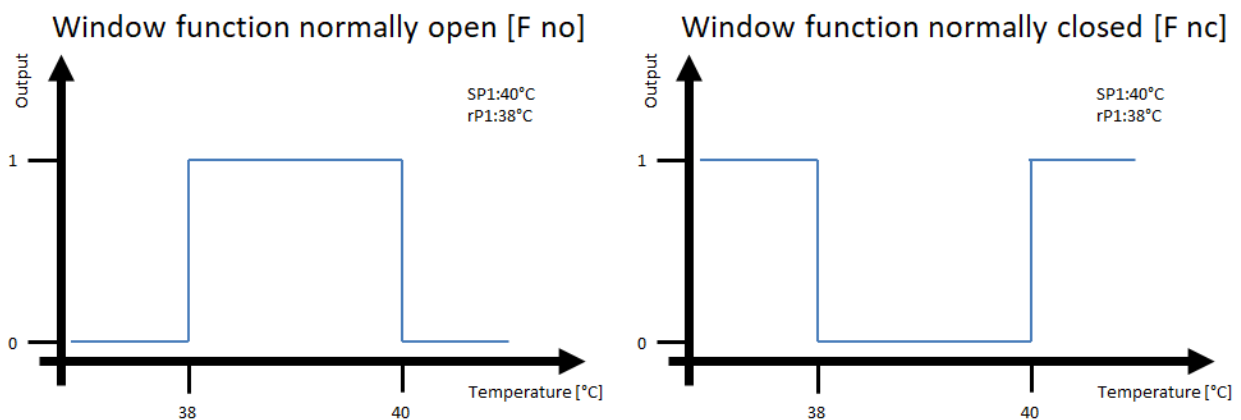
8 Functional description

8.1.1 Hysteresis function



A temperature rise to SP1 (here 40°C) switches the output depending on the setting H no or H nc. This state is maintained if the temperature continues to rise. If the temperature falls, the output switches back when the temperature falls below the set switch-back point rP1 (here 38°C).

8.1.2 Window function



A temperature rise to rP1 (here 38°C) switches the output depending on the setting F no or F nc. This state is maintained up to the set switching point SP1 (here 40°C). The output switches back when the temperature is exceeded (leaving the window). If the temperature falls, the output also switches according to the set window (40°C to 38°C).

8.2 Level - switching functions and switching points

Depending on the housing variant, 1-2 switching points can be configured for the 80mm housings or 1-6 switching points for the 120mm housings.

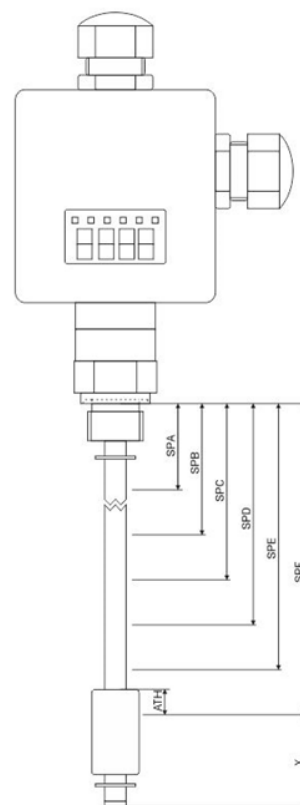
Each switching point has to be defined in the order key with one of the following functions:

- B1 closes on level rise
- B2 opens on level rise
- B3 closes on level drop
- B4 opens on level drop
- B5 change-over contact

The technical details of the reed switches used are individual and can be found in the data sheet.

Continuous level measurement is also possible in 5mm resolution over the entire length or partially. Details for possible materials and individual dimensions can be found in the current data sheet or the Internet at www.engler-msr.com.

The output signal of the continuous measurement can be ordered as a 4-20mA or as a 0-10 volt signal. The signal is scaled to 100% at the factory. This option is only available on channel 6 in the 120mm housings. This channel is not available as temperature switching point then (see "Configuration options").



ATH – Height above medium surface, depending on float and medium
X dimension, depending on float and medium
Designation for one switching point: SPB

10 Factory setting

The following values are restored when the rES function is selected

Display	Default value
SP1	30°C
rP1	28°C
out1	High
SP2	32°C
rP2	30°C
out2	High
per additional level	+2°

Display	Default value
Unit	°C
FS1	OFF
oSet	0

11 Error codes

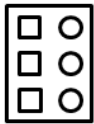
Error code	Description	Cause	Solution
Err1	Communication error on the sensor	No communication with sensor	For external sensor: Check connection and cable. Check sensor tube
Err2	thermal limit range - check area of application or process	Temperature of the medium close to an impermissible range	Check medium and installation conditions / process
Err3 +6LEDs blinken	Sensor faulty	Temperature was outside the permissible limit range	Device no longer ready for use, repair only possible at Engler

12 Notes

13 Connection diagrams

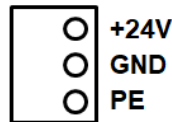
The following terminal diagrams show the standard. Individual configurations are also possible, also potential applied.

13.1 Terminal strip with cable gland

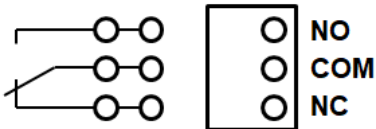


3-pole terminal with push-in
spring connection for
conductor cross-sections:
Level: 0.13...1.5mm²
Temperature: 0.2...1.5mm²

Power



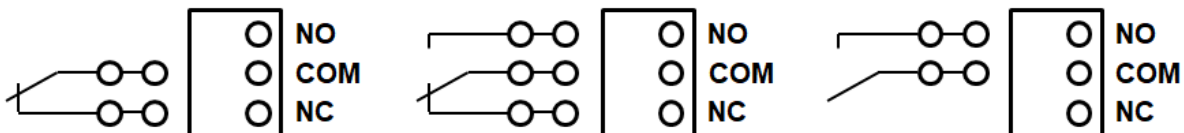
Terminals 1-6 with temperature configuration



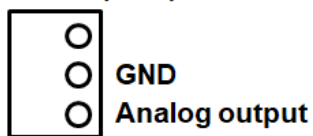
Drawn in unactuated state

Channels 1 to 6 Changeover
contact, potential-free

Terminal 2-8 with level configuration

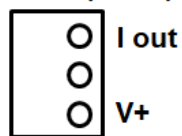


optional:
Analog Temperature
(SI19)



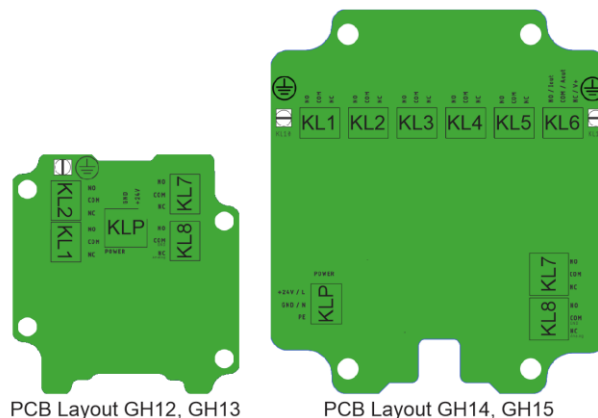
CH8*

optional:
Continuous level measurement
(AL0x)



CH6*

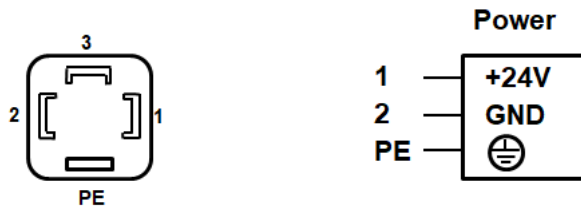
*For optional analog outputs, the terminals are pre-assigned and
cannot be used for switching points



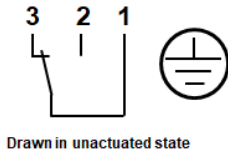
PCB Layout GH12, GH13

PCB Layout GH14, GH15

13.2 Valve plug according to [DIN EN 175301-803]

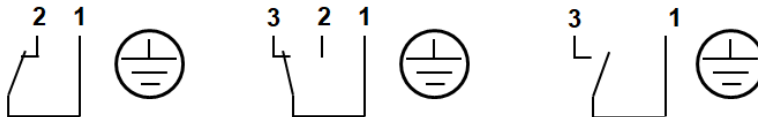


Channel 1-6 with temperature configuration

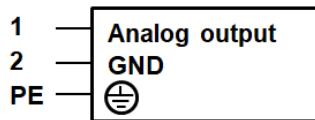


Channels 1 to 6 Changeover
contact, potential-free

Channel 2-8 with configuration level

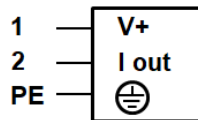


optional:
analog Temperature
(SI19)



CH8*

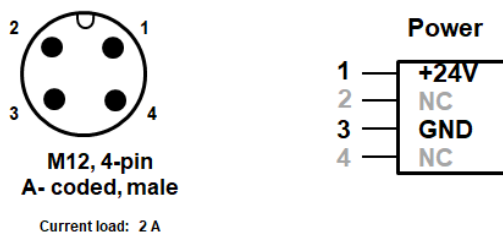
optional: Continuous level
measurement
(AL0x)



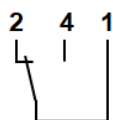
CH6*

*For optional analog outputs, the above channels are pre-assigned
and cannot be used for switching points

13.3 M12x1 plug connection

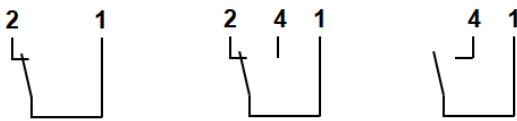


Channel 1-6 with temperature configuration

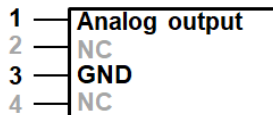


Channels 1 to 6 Changeover
contact, potential-free

Channel 2-8 with configuration level

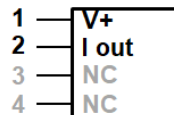


optional:
analog Temperature
(SI19)



CH8*

optional:
Continuous level measurement
(AL0x)



CH6*

*For optional analog outputs, the channels are pre-assigned and cannot be used for switching points

14 Configuration options

14.1 UTS-1

Table 1

Clamp	1	2	3	4	5	6			8
Temperature	T	T	T	T	T	T			
Analog									AT
	80mm housing							80mm housing	
	120mm housing								

T – Temperature switching points

AT – Analog temperature measurement

Each terminal can be configured for a maximum of one function

Terminal 8 can optionally be configured as an analog output for analog temperature measurement

Devices with 120 housing (GH14 and GH15) can be configured as 230V variant

14.2 UTS-2

Table 2

Clamp	1	2	3	4	5	6		7	8
Level		N	N	N	N	N		N	N
Temperature	T	T	T	T	T	T			
Analog						KN			AT
	80mm housing							80mm housing	
	120mm housing								

N – Level measurement via switching contact

T – Temperature switching point

KN – Continuous level measurement

AT – Analog temperature measurement

Each terminal can be configured for a maximum of one function

Terminals 6 and 8 can be selected as an analog output for analog temperature or continuous level measurement

Devices with 120 housing (GH14 and GH15) can be configured as 230V variant