OPERATING INSTRUCTIONS

Water detector SHT 5001

Item number:

400748

- **DIN EN 502 top-hat rail housing**
- **2 signaling lines, 2 potential-free changeover relays**
- **2/24 V battery and 230 V~ mains possible simultaneously**
- **Priority 230 V : 12V battery = UPS function**

to the product

Thank you very much for your trust!
In order to guarantee optimum function and performance of the product at all times and to ensure your personal safety, we would like to ask you to read these operating instructions carefully before installation and initial start-up and, above all, to follow the safety instructions! Your confidence!

The operating instructions are an integral part of this product. Please keep them for future reference!

Scope of delivery
- SHT 5001 water detector, installation material, operating instructions,
- Optional: Water sensors / float switch

Safety instructions
- Read the operating instructions carefully before installing or operating the appliance.
- Installation must be carried out by a qualified specialist.
- Packaging materials are not children‘s toys. Keep them away from children.

Ambient conditions
The standards used to assess the product specify limit values for use in residential, commercial and small business environments, whereby the use of the product is intended for these operating environments:

- Residential buildings/living spaces such as houses, apartments, rooms, etc. Sales areas such as stores, supermarkets, etc.
- Small business premises such as workshops, service centers, etc.
- All locations are characterized by the fact that they are connected to the public low-voltage grid.

Intended use
The SHT 5001 is a water detector for fixed installation in a small distribution board or fuse box. It has 2 alarm lines, each connected to its own alarm relay, and 2 inputs each for passive water sensors (AC) or mini float switches (DC). In the event of an alarm, the red sensor LED lights up (input

1) or flashes (input 2), an internal piezo buzzer sounds (can be permanently deactivated), the assigned relay switches and an alarm output (12V / max. 30 mA) for connecting an external piezo driver or an LED (e.g. for switch cabinet door) is activated. An alarm memory can be set individually for each signaling line using a wire jumper. The alarm is acknowledged internally by pressing the RESET button or externally by closing a potential-free contact (e.g. external button, mini float switch, reset contact from the GSM dialler, etc.). The alarm settings are checked with the TEST button; "water" is simulated on both signaling lines. The connected sensors and mini float switches are not tested. The SHT 5001 is operated with mains voltage from the public power supply and/or 12 / 24 V DC voltage from external batteries / rechargeable batteries.

Technical data

Operating voltage:	12 / 24 V= or 100 - 240 V~ / 50-60 Hz
Power consumption:	approx. 2 - 3 W / VA, depending on operating status
Protection class:	IP 20 for dry indoor areas
Signaling lines:	2 sensors (AC) and/or 2 mini float switches (DC)
AC measuring voltage:	115 Hz / 2.5 Vpp
DC measuring voltage:	12 Volt
Cable length:	AC up to 100 m / DC up to 300 m (max. 10nF)
Alarm threshold:	AC < 80 kΩ / DC < 180 kΩ
Alarm output:	12 Volt / max. 30 mA
Functional range:	+5 °C ... +45 °C
Storage temperature:	-20 °C ... +70 °C
Humidity (ambient):	5 - 90% rH (non-condensing)
Dimensions (HxWxD):	90 x 72 x 57 mm (4 TE top-hat rail)

The warning device must not be operated in the following locations:

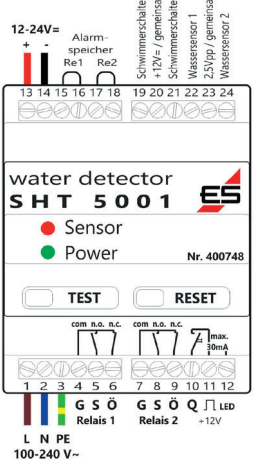
- directly above a stove or a place of combustion or above a sink / drain
- directly next to or in the air flow of ventilation, fans, air conditioning systems
- in areas where dust, moisture or dirt could disable the water detector
- in rooms at risk of explosion
- Always keep the SHT 5001 completely away from moisture!

Overview of the connections:

All connections are designed as screw terminals. Open the screws, insert the wire or stranded wire and close the screw again. Please do not over-tighten the screws. The wire should not be able to slip out by itself, but the screw terminals do not serve as strain relief!

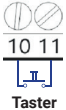
1 / 2 / 3: L, N, PE	Operating voltage for mains operation 100-240 V~ / 50-60Hz
4 / 5 / 6: co, no, nc	Relay 1, switches in the event of a water signal from signal line 1
7 / 8 / 9: co, no, nc	Relay 2, switches in the event of a water signal from signal line 2
10 / 11: quit, +12V	Connection of potential-free contact for alarm acknowledgement
11 / 12: +12V, neg.	bridged = internal piezo permanently deactivated, Connection for external piezo sounder or LED, max. 30mA
13 / 14: +DC, -DC	old. DC operating voltage for battery operation, 12 / 24 V=
15 / 16: B1, B1	bridged = alarm memory signaling line 1 On, open = Off
17 / 18: B2, B2	bridged = alarm memory signaling line 2 On, open = Off
19 / 20: fs1, DC	Mini float switch for signaling line 1
20 / 21: DC, fs2	Mini float switch for signaling line 2
22 / 23: ws1, AC	Water sensor for signaling line 1
23 / 24: AC, ws2	Water sensor for signaling line 2

Special case changer or redundancy:
19 / 20 / 21: Mini-switch changeover contact,
one relay is always (!) energized
22 / 23 / 24: for water sensor SHT 5600
or SHT 5008,



Operating voltage (1, 2, 3 or 13, 14)
Connect an AC mains voltage of 100 to 240 V and 50 to 60 Hz to 1 L, 2 N and 3 PE. The device is immediately ready for operation. Alternatively, connect the voltage from a 12 V or 24 V rechargeable battery, a battery or a battery-supported on-board power supply to 13 + and 14 -.
A 12 V backup power supply can be applied at the same time as the AC mains voltage. If the mains voltage fails, the required energy is automatically drawn from the 12 V battery voltage without interruption. If a 24 volt battery voltage is applied at the same time, this has priority over the mains voltage, the limit is approx. 15 volts.

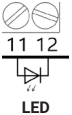
Relay contact 1 (4, 5, 6) and relay contact 2 (7, 8, 9)
Both relay contacts are potential-free changeover relays that can be loaded with max. 250 V~ or 30 V= and 5 A. The relays are de-energized in monitoring mode and energize when water is reported at the respective sensor or mini float switch. Relay 1 is assigned to signal line 1 (19-20 and 22-23), relay 2 is assigned to signal line 2 (20-21 and 23-24).



Taster

External acknowledgement (10, 11)
A potential-free NO contact, connected to terminals 10 and 11, performs the same function as pressing the RESET button. This makes it possible to install a button in the switch cabinet door or to reset the detector via sms with a contact of the GSM dialer GD-04K (article 200279). The buttons/contacts must be normally open contacts with momentary function, so several options can be connected in parallel. The function of the RESET button is retained at all times.

Drahtbrücke



LED

Piezotreiber

Alarm output (11, 12) and muting of the internal alarm transmitter
Terminal 11 is always connected to 12 volts DC, the associated negative pole on terminal 12 is switched via a transistor (“open collector”) in the event of an alarm and can be loaded with max. 30 mA. If something is connected here, the internal piezo alarm transmitter is muted in any case.

If the internal piezo is to be muted without connecting other elements, terminals 11 and 12 are simply bridged with a wire. Otherwise, LEDs, piezo drivers with their own driver or another 12V relay can be connected, even in parallel, as long as the current requirement at 12 volts does not exceed 30mA.

Alarm memory 1 (15, 16) and alarm memory 2 (17, 18)
Alarm memory 1 is assigned to signal line 1 and relay 1,
Alarm memory 2 is assigned to alarm line 2 and relay 2.
The alarm memory retains an alarm even if the water event (wet sensor or switched mini float switch) has receded. The assigned relay remains energized, the sensor LED continues to light up / flash, the alarm output (11, 12) remains activated. The water detector is not reset until the RESET button is pressed or the acknowledgement contact (10, 11) is closed. the alarm memory is reset with a wire jumper between each of the terminals 15 and 16 for alarm line 1 and 17 and 18 for alarm line 2.

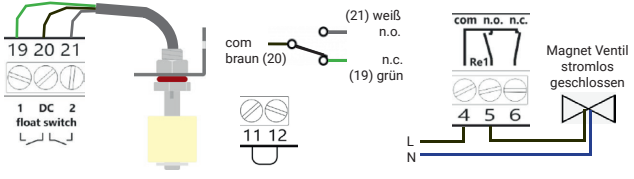
DC connections for mini float switches (19, 20 and 20, 21)
The metal contacts of a mini float switch will never come into contact with water and are therefore designed in DC (direct voltage). This enables long cable lengths, which are limited solely by the cable capacitance (max. 10 nF) and the cable resistance. Lengths of up to 300 m with 2x 0.14 mm² LiYY cables have been successfully tested by Elektrotechnik Schabus and represent the real advantage of the new SHT 5001 over its predecessor, which could not handle thicker cables and could only handle cables up to 50 m. The common contact (20) provides the measuring voltage; the SHT 5001 “receives” the information as to whether the mini float switch has detected a water level at terminals 19 for signal line 1 and terminal 21 for signal line 2.

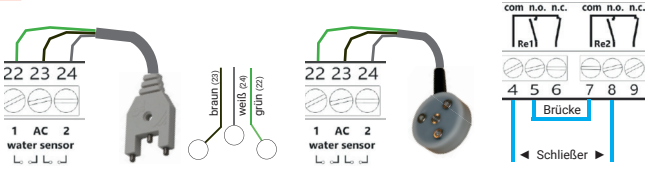
AC connections for water sensors (22, 23 and 23, 24)
As the metal contacts of the water sensors come into contact with water and thus initiate an electrolytic process, i.e. the contacts can corrode or even dissolve at an accelerated rate under current flow in the conductive medium, the resistance measurement is carried out with a 115 Hz alternating voltage in order to at least delay these corrosion effects. However,

this imposes a natural limit on long cables, as each cable or its series resistance and parallel capacitance creates a low-pass filter in which the measuring frequency is lost and the water detector is therefore prone to false alarms. This correlation also shows why sensors are always wearing parts and why they are only used in regularly dry environments. With the new SHT 5001, 100 m of cable with max. 2x 0.14 mm² can be achieved at the AC input, whereas only 50 m was possible with the previous version. The common contact (23) provides the AC measuring voltage; the SHT 5001 “receives” the information on terminals 22 for signal line 1 and terminal 24 for signal line 2 as to whether the water sensor has detected water.

Special case mini float switch “changeover contact” (19, 20, 21)
The three wires of a changeover mini float switch can be connected directly to the DC connections. The SHT 5001 is therefore permanently in alarm mode, as one of the two signal lines is always activated and one of the two relays is always energized. In principle, only the changeover switching function of the mini float switch for power switching is extended with the relays. In this case, the internal piezo sounder should be muted with a wire jumper on terminals 11 and 12. The advantage of such a circuit is that the permanently energized relay drops out not only when the water rises, but also in the event of a power failure, e.g. safety circuit of a normally closed solenoid shut-off valve.

Special case “Dynamic” or “Redundancy” water sensor (22, 23, 24)
Two water sensors with 3 contacts are currently available: the SHT 5008 (art. no. 300719) for redundancy or reduction of false alarms in damp environments, and the SHT 5600 (art. no. 300753) for dynamic initial detection of ground moisture and differentiation from rising water.





Dynamics with SHT 5600:
At the first contact with water or ground moisture, signal line 1 is alarmed with green / brown. If the water continues to rise, alarm line 2 is also activated with brown / white.

Redundancy with SHT 5008.
or AND function with two individual water sensors: Two pairs of contacts must be wetted for both alarm lines to be activated, i.e. both relays must be energized and switched through.

TEST button
By pressing the TEST button, the SHT 5001 water detector simulates that both detection lines are activated, as if both sensors were detecting water. The connected water sensors or mini float switches are not tested.
If one or both alarm memories are set, the alarm continues to be triggered until a manual reset (RESET button or external acknowledgement contact 10/11).

RESET button
The RESET button resets the water detector to monitoring mode when an alarm is saved. This only works if no more water is detected via the detection lines.
During a real and unsaved alarm, only the internal piezo sounder can be muted with the RESET button.

Red SENSOR LED
The red SENSOR LED indicates whether and which signaling line is activated. The SENSOR LED lights up when signal line 1 is activated and flashes for signal line 2.
If both signaling lines have been activated, the LED flashes between brighter and darker.

Green POWER LED
The green POWER LED lights up as soon as the correct operating voltage is applied. The water detector is ready for operation and is in monitoring mode when the red SENSOR LED goes out at the same time.

Water sensor or mini float switch? What do I need?
The answer to this question is quite simple: If it is only somehow possible to use a mini float switch in terms of its intended use, then you must use it. Because then you are dealing with a water level, a gauge or a stroke. Sensors will work for a while, but with their bare contacts they are completely unsuitable for constantly damp environments.

Bear in mind that water sensors are wearing parts. The more often and longer they are exposed to water, the faster they age and, in the best-case scenario, tend to generate more false alarms. Even if you are convinced that your sensor is really dry, water may have penetrated the inside of the sensor and caused considerable corrosion, rust, verdigris, etc.

Sensors are only suitable for regularly dry environments, for detecting water in general on floors and in particular under washing machines and dishwashers, perhaps under the boiler or other water-bearing appliances, pipes, radiators, etc., i.e. mainly dry surfaces that normally or hopefully never come into contact with water.

General
Elektrotechnik Schabus GmbH & Co. KG is not liable for damages and/or losses of any kind, e.g. individual or consequential damages, resulting from the fact that no alarm signal is given by the water detector despite changes in the water level.

Cleaning and care
Avoid exposing the device to moisture (spray or rainwater), dust and direct sunlight. Only clean the device with a dry linen cloth, which may be slightly moistened if it is very dirty. Do not use solvent-based cleaning agents for cleaning.

You can request a **declaration of conformity** by e-mail from us at **info@elektrotechnik-schabus.de**

Warranty
We grant a statutory warranty on your electronic product from Elektrotechnik Schabus for material defects and quality defects from the date of purchase. Elektrotechnik Schabus will repair or replace your device free of charge under the following conditions:

- In the case of a statutory warranty, the appliance must be sent in with the following documents: Description of the fault, proof of purchase and your address and delivery address (name, telephone number, street, house number, zip code, city, country).
- Devices that are returned to Elektrotechnik Schabus must be adequately packaged. Elektrotechnik Schabus accepts no liability for damage or loss during shipment.
- The device must have been used in accordance with the instructions for use. Elektrotechnik Schabus accepts no liability for damage or expenses of any kind resulting from the use of the equipment or accessories or for damage caused by accident, misuse, alteration or negligence.

Return shipment
If your device is defective, please contact us:

Phone **+49 (0) 80 36 / 67 49 79 - 0**
Email **info@elektrotechnik-schabus.de**

Please state your full address and the reason for the return. We will send you a return label by e-mail free of charge (only within Germany). Under no circumstances should you send us an unfree parcel, as we will not accept it! Unauthorized returns that do not constitute a complaint will be charged to you retrospectively.

Environmental information
The production of the product you have purchased required the extraction and use of natural raw materials. It may contain substances that are hazardous to health and the environment. To prevent the spread of these substances in your environment and to save natural resources, we ask you to use the appropriate take-back systems. Thanks to these systems, the materials in your product can be reused in an environmentally friendly way at the end of its service life.

WEEE-NR.: 91394868

The crossed-out waste bin symbol on the product reminds you to use these systems. If you require further information on collection, reuse and recycling systems, please contact the waste advice center in your city. You can also contact us for more information on the environmental impact of our products.

QR-Code zum Download oder Nachbestellen unter:

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