

DAS-1 SMS flood alarm device

Description

The DAS-1 (Distance Alarming System) device is intended for boats. Ultrasonic sensors measure the distance and if it is shorter (default 4cm) it sends an SMS and makes a call. The sensor combination measures the distance in the range of 4cm - 400cm (deviation to 400cm max ~ 3mm). The ultrasonic sensor measures at an angle of 15° and takes an average value in several consecutive measurements. Measurement values are rounded to an integer.

Usage

A SIM card is required for SMS notification. The SIM card should be activated and PIN turned off. It is necessary to restart the DAS-1 by inserting the SIM card again. After the first start, it is necessary to wait 20 sec for the DAS-1 to connect to the network and perform calibration. If the distance is less than 4cm or more than 400cm, the DAS-1 will not be properly calibrated. It is necessary to restart to measure within the range of 4cm - 400cm.

Assembly

DAS-1 is mounted above the measuring surface (trough, bilge). The power source is a DC battery (accumulator) voltage 6-36V. It is necessary to wait 20 sec after connecting to the power source. It will measure the distance and take it as the initial value to measure. PLUS + wire is marked with a sticker. Be sure to connect plus +, minus - correctly, as incorrect connection may damage the device.

SMS programming

*In order for DAS-1 to send a message, it needs to be programmed.
Send an SMS to the device number in the following form:*

mob1:, mob2:, name:, boat:,

Example:

**mob1:+3859123456789, mob2:, name:Nickname or Name,
boat:ZD-12345,**

You can also program each parameter by sending a message individually.

The characters between which values are stored are:
: colon
, comma

The maximum length per parameter is 20 characters. Do not use diacritical characters (č, ć, š, đ, ž), etc. accented characters to register the name. Only GSM characters are allowed. It is possible to define one or two numbers. The other number can not send queries, but will receive a message if the device is in the alarm zone.

Example of SMS notification 'Alarm' for number mob2:

**Alarm!
Boat: ZD-12345
Current value: 18
Calibrated at: 24**

It means that it is calibrated to a distance of 24cm, and currently measures 18cm which is a difference of 6cm (distance greater than the default 4cm for the alarm).
Mob1 will receive both a message and a call when 'Alarm'.

A comma must be placed at the end of each value or the parameter will not know when the value entry is over and will not be saved.

Return SMS from DAS-1:

Setup OK

Mob1: +3859123456789

Mob2:

Name: Nickname or Name

Boat: ZD12345

After the device is registered, the following messages can also be sent:

reg? - returns a message of registered parameters
status? - returns a message about the sensor values (temperature, humidity, calibrated distance, current distance and battery voltage)
!calib - recalibrates the DAS-1 Plus
!calib=6! - recalibrates the DAS-1 Plus, but defines how

Many differences in cm the alarm message / call will send (in this case 6cm)

By default, the DAS-1 measures a difference of 4cm. If you programmed a different value, it will remain saved until the next change. DAS-1 remembers these values.

If liquid is poured into the trough / bilge: sea, oil, antifreeze or any other liquid, the measurement distance will be shorter. If it is shorter than 4cm (or if otherwise defined), the DAS-1 will send an SMS message.

After 6s it will also send a message to mob2 if defined. After 15s, he will make a call.

The call lasts until the user hangs up. The DAS-1 does not have a connected microphone or headset. It is for notification only and you can cancel at any time.

If it is in the alarm zone, it makes calls and messages every 5 minutes with updated values.

Sending an SMS message **!calib** will calibrate the DAS-1 again. This means that the initial value will be measured after the message is received and from that value it measures the difference again.

By calling the DAS-1 number, you will end the call and return a value identical to the one sending the **status?** message. Do not end the call, because the DAS-1 is measuring during the call. It usually takes one ring, and may take longer depending on the GSM service provider.

If the DAS-1 is out of range of the network operator, it will try to connect every 5 minutes.

Disclaimer

DAS-1 is intended as a control and alert device.

The DAS-1 components are CE certified and the device only signed with a Declaration of Conformity by the manufacturer. The manufacturer guarantees the correctness of DAS-1 and the warranty is valid for one year.

The manufacturer accepts no liability for damage caused by improper handling.

The device is not waterproof and is not intended to work in liquids.

The DAS-1 uses a SIM card. The number should be active and have sufficient funds to send SMS and make calls.

Questions and Answers

Q. DAS-1 sends an Alarm message, and there is no alarm fluid in the trough?

A. DAS-1 transmits ultrasonic pulses and measures the time from which they are rejected and then calculates the distance. If the angle is less than 45 ° the device will receive a rejected ping and report the distance. The angle of measurement width of the sensor is 15 ° according to the declaration of the sensor manufacturer.

Q. DAS-1 does not send an SMS when it is in the alarm zone?

A. If the SIM card is not inserted correctly, is no funds, or has disconnected network, the DAS-1 will not be able to send the SMS.

Q. DAS-1 does not send a call message but rings and hangs up properly?

A. SMS delivery sometimes lasts longer than 2 minutes. Do not send more messages if you have not received a reply, as your network operator will delay sending the message. Check the account balance on the SIM card.

Q. Why DAS-1 does not send a return message after sending a !calib message?

A. Sending message **!calib** or **!calib=X!** where X equals the number for the alarm, it never sends a return message. The goal is to reduce the cost of sending messages. You can always check the calibration status by calling or sending message **status?**. Be careful with sending **!calib** message, as it again takes initial value from measure up to the alarm.

Q. To change the registration value, DAS-1 returns a message with old data?

A. Check that a comma , is written at the end of the value. You can always empty the registration value by leaving a blank field between a colon and a comma, eg **mob2: ,**. Repeat the message.

Q. Do the registration values remain after a power failure?

A. Yes, DAS-1 stores registration values. But after restarting it does a calibration of the initial distance again.

Q. Which operator to use for a DAS-1 device?

A. Any GSM network operator where the signal is covered. Croatia has very good coastline and island coverage. DAS-1 works on the 2G GSM standard and is compatible with all countries and regions.

Q. I sent multiple messages, I have the status that they were delivered, but DAS-1 did not respond?

A. The SIM module may have network interruptions. If it loses the signal it will reconnect after it is in the GSM signal zone. After 5 minutes, resend the message or make a call.

Q. Can a mosquito or other small insect trigger an alarm?

A. No. Small obstacles cannot trigger the alarm. With all of the above, DAS-1 will make 90 measurements and take the average value.

Q. DAS-1 sends me a distance much shorter than set.

A. The sensor registers the object from the side. Check the position of the ultrasonic sensor facing the measuring area and remove obstacles in the 15° zone. You can also put guides. The sound bounces and measures to the end and returns the value.

Q. Is DAS-1 waterproof?

A. No, DAS-1 is not waterproof. The box contains openings so that the sensors can measure values and if exposed to liquid they may stop working.

Q. What is the temperature range measured by the sensor?

A. DHT11 gauge sensor in the range 0 - 85C °. Deviation ~ 0.5 °C.

Q. What else is a temp and humidity sensor for?

A. Sound travels differently depending on temperature and humidity, so the value of temperature and humidity is included in the calculation of the speed of sound, in order to make the value as accurate as possible. At 400cm it has a deviation of only 3mm which is negligible because the values are rounded to an integer.

Q. What is the accuracy of measuring the power source (battery,)?

A. DAS-1 for voltage measurement works on the principle of voltmeter, but may have deviations depending on current consumers. Accuracy varies from 0.05V to 0.1V.

Q. How much current take DAS-1? DAS-1 in the measuring state consumes an average of ~ 3uA (micro amperes). In case it connects to the network or when calling, it can consume more.

EN

EU DECLARATION OF CONFORMITY

1. No.: 312021-001 DAS-1 Plus
2. AL Sistemi d.o.o. 23000 Zadar, Ulica Grgura Budislavića 99
3. This declaration of conformity is issued under the sole responsibility of the manufacturer: AL Sistemi d.o.o.
4. DAS-1 PN 312021-001 (Distance Alarming System)

DAS-1 SMS programmable micro controller with temperature and humidity sensors DHT11, ultrasonic distance measurement SR-HC04 and GSM communication module SIM800L. DAS-1 accurately without contact measures the distance, sends an SMS notification and a call to the vessel owner. Input power DC 6-36V.
5. DAS-1 complies with the relevant Union legislation on compliance with the communication standard **2014/53/EU** and electrical safety.
6. All elements are CE certified.
8. Additional information:

Signed for and on behalf of:

Zadar, 2.8.2021.

Dir. Antonio Lovrinović



AL - SISTEMI

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