User Manual: SonicSens 3

(Part 1 / 2) Installation and Setup.

SonicSens 3

SonicSens 3 + Install options

Warning:

Always read this manual in conjunction with the Safety Supplement (MANEX-153-0001) which contains important safety and operating information. Please read, understand and follow the instructions in the manuals. Additionally, carefully read and follow the information in the “Safety Warnings and Approvals Information” document.

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1 INTRODUCTION, SAFETY AND SUPPORT OF PRODUCT

Thank you for choosing a HWM device. We trust it will provide you with many years of service.

SonicSens 3 is a sensor that measures distance, typically being installed to measure the distance to the surface of a body of water. It can connect to various HWM logger devices, which provide it with power and read measurement results from it.

This user-guide covers only the SonicSens3 sensor. Please also refer to the user-guide of your HWM logger for specific details of how to install the logger being used. In particular, your logger user-guide provides details of setting call-in times for data and tests to confirm the call-in function of the logger is working.

This user-guide covers the following models:

Model Number(s)	Description
SONIC3 / 6 / * / IS	SonicSens 3 (Intrinsically Safe). 6m max range.
SONIC3 / 10 / * / IS	SonicSens 3 (Intrinsically Safe). 10m max range.

1.1 SAFETY

Before continuing, please read the "Safety Warnings and Approvals Information" document supplied with the product (MAN-153-0003).

The product model family includes both Intrinsically Safe and non-Intrinsically Safe versions. Ensure the version of the product you are using meets the minimum requirements of the installation.

For the intrinsically safe version, also refer to document MANEX-153-0001 "SonicSens 3 User Manual 2/2 Safety Supplement". This provides additional safety information including port parameters.

In an ATEX environment, this product is only to be installed and connected by a **fully ATEX trained installer**.

Before using this product, please make a risk assessment of the installation site and expected work activity. Ensure any tools necessary for installation are suitable for use in an ATEX environment. Ensure suitable protective clothing is worn and working practises are followed during installation and any maintenance.

Within an ATEX environment, only use an Intrinsically Safe model of SonicSens 3, which should be used in conjunction with a known Intrinsically Safe model of HWM logger (e.g. Intelligens). For ATEX installations, confirm the SonicSens 3 and logger both have ATEX markings. Ensure the communications cable used to attach to a PC is also ATEX marked.

SonicSens 3 can also be used in non ATEX applications.

1.2 SUPPORT OF PRODUCT

HWM provides support of the product by means of webpages:

https://www.hwmglobal.com/sonicsens-3-support/

Should you have any questions that are not covered by a manual, or Frequently Asked Questions (FAQs) provided online, please contact the HWM Technical Support team on +44 (0) 1633 489479, or email cservice@hwm-water.com

2 OVERVIEW:

2.1 DEVICE - OVERVIEW

SonicSens 3 is a sensor that measures distance. It is typically installed to measure the distance to the surface of a body of water. It can connect to various HWM logger devices, which provide it with power and read measurements from it.

There are different models available, which are mechanically similar in construction but slightly different in size. The models have different measurement ranges.

SONIC3 / 6 / * / IS models have a range of up to 6 meters.
SONIC3 /10 / * / IS models have a range of up to 10 meters.
(Note: Refer to the HWM datasheet for SonicSens 3 for additional specifications).

The IS models have a 6-pin connector on top of the unit, to which a cable with water-tight connectors can be attached (and a similar connector will exist on the logger). The cable can fit either way around. All connectors should be kept free of moisture.

Ensure your logger has a SonicSens 3 interface installed before attempting installation. This can be determined by the port label on the logger, or from the part-number of the logger. *Refer to your logger's manual for guidance.* Also check the connector on the logger side has the correct number of pins.

The SonicSens 3 is an intelligent device, containing microcontrollers. It also contains an ultrasound transducer. It operates by emitting focussed high-frequency sound pulses, which travel to the surface of the water and are reflected back to the sensor. The sensor recognises the pulse pattern and determines the time delay for the echo to arrive. The time delay is converted into a distance measurement.

Each SonicSens 3 is calibrated within the factory before shipment. The calibration settings, model-number and serial number are stored within the SonicSens 3. All other (use-related) configuration data and settings are stored within the logger. This makes units of the same model-number interchangeable, allowing failed units to be replaced without any further setup.

SonicSens 3 is powered down by the logger when not required, to save power. Each time it is required to make a measurement, the configuration details are sent to the SonicSens 3 and a measurement is requested. The sensor makes the measurement and then gives the result to the logger device. The logger temporarily stores the data,

further process it if required, and eventually uploads data it to a system which stores the measurement data of the site (e.g. DataGate); Refer to the logger manual for more details.

The SonicSens 3 must be mounted securely above the body of water. Accessories for mounting the unit are available to suit most installation options. After mounting the SonicSens 3, some checks and distance measurements are usually required to be made from the installation site.

Although the unit primarily measures the distance to the surface of the body of water, the logger can be used (with site measurements) to derive a more comprehensive list of measurements.

The SonicSens 3 requires a PC software tool called "IDT" (Installation Diagnostic Tool), provided by HWM, in order to set up its functionality.

2.2 INSTALLATION OF IDT

The latest version of IDT can be downloaded from the HWM website:

https://www.hwmglobal.com/idt-support/

IDT can be set to different operational "views" (which set the user-interface and privileges). The "basic" view is sufficient for setup and test of SonicSens 3.

2.3 SONICSENS 3 INSTALLATION ACCESSORIES

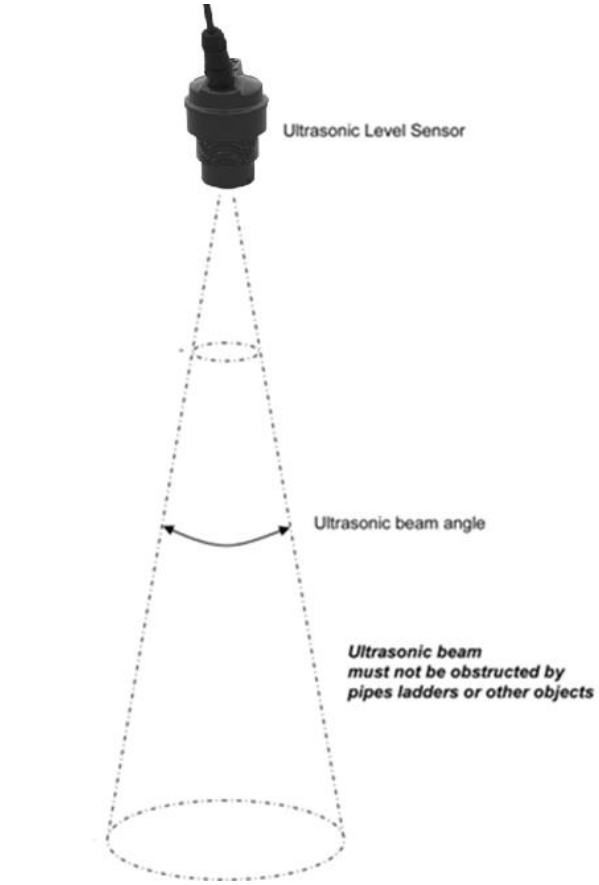
The following accessories are available:

- Mounting bracket (fixed).
- Mounting bracket (hinged – Fold left).
- Mounting bracket (hinged – Fold right).
- Clamps (female, male).
- Sensor bracket (2 sizes) with bubble level.
- Extension posts (various lengths).
- Submergence shield.
- Sound Deflector plate (Stainless steel). (Check with HWM for availability and use).

3 CHOOSING THE CORRECT SENSOR RANGE AND POSITION

The SonicSens 3 emits a focused ultrasonic pulse, which travels in a cone-shaped beam from the bottom of the unit. The beam is approximately 10 degrees cone (refer to the Datasheet). The beam should be targeted at the surface of the water (more precisely, at the base of the water container).

The path of the beam should be clear of objects, including the side walls of the chamber, since it can affect the echo that the sensor is trying to detect. It is important to check below the water surface for any features that can cause problems, as otherwise the beam may be deflected in another direction only when the water depth is low.

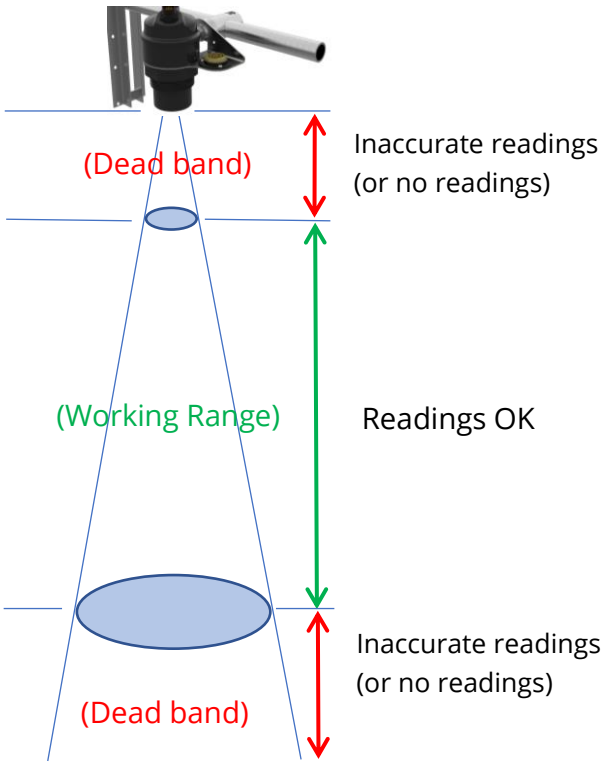


Choose a sensor with a the most suitable distance range for the maximum and minimum water levels.

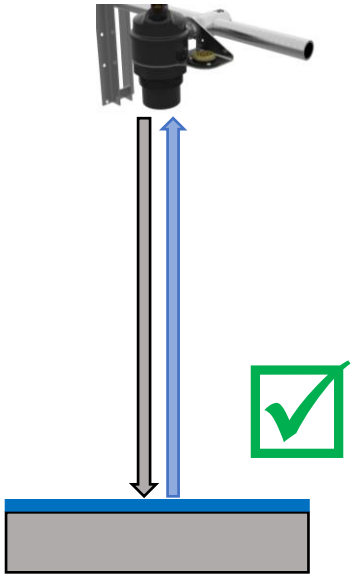
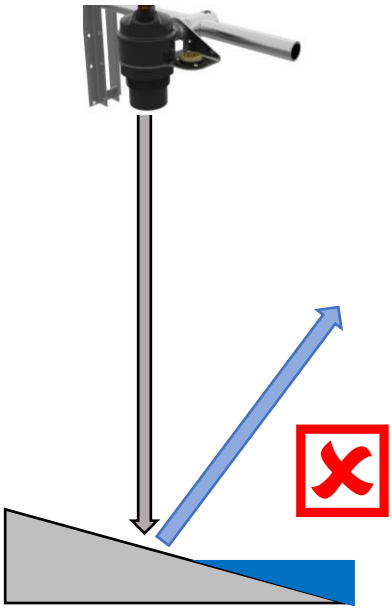
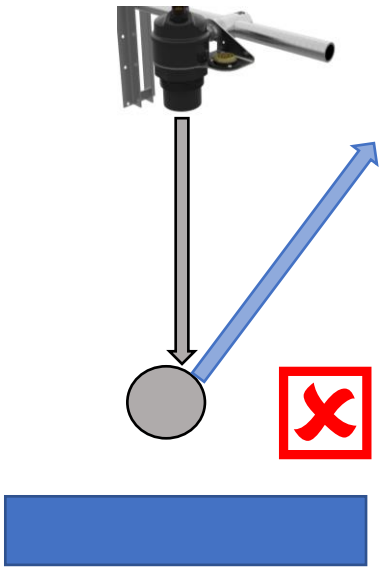
When the SonicSens 3 operates outside of its specified range, results can be inaccurate, or the unit will be unable to produce a measurement result. Regions outside of the working distance of the sensor are also called the sensor's "dead bands".

Refer to the relevant datasheet of the model of SonicSens 3 you are using for the working range. (See also section 4.6).

The water minimum level (base of the water container) and maximum level must be within the working range of the SonicSens 3.



When installing, obstructions within the cone of the beam should be checked for and avoided.

		
Ideal: The signal has a good flat surface to bounce straight back from, even when the water level is low.	Problem: SonicSens 3 is looking at a sloping (Benched) surface causing the signal to bounce away. This may be a problem that does not appear until the water level is low.	Problem: The ultrasonic beam has struck an object in its path causing all or part of the reflected signal to bounce away. This may be a problem that does not appear until the water level is low.

4 SONICSENS 3 CONNECTION AND PRE-INSTALLATION TEST

It is recommended to do a pre-installation test to confirm the device is suitable for installation. The steps involved are:

- Connect the SonicSens 3 to the logger
- Confirm the logger recognises that SonicSens 3 is fitted, using IDT.
- Select a suitable profile. The SonicSens 3 must be set to a suitable profile in order to work correctly. The profile affects the range of the sensor, as well as accuracy.
- Trial the sensor in the proposed installation position.
- If the result looks OK, proceed.
  i.e.:
    - Complete the installation,
    - Profile adjustments,
    - Setup of measurements,
    - Setup of logged channels.

4.1 CONNECT THE SONICSENS 3 TO THE LOGGER

IS / ATEX models:

Ensure your logger has a SonicSens 3 interface installed, with a 6-way connector fitted, before attempting installation. This can be determined by the port label on the logger, or from the part-number of the logger. *Refer to your logger's manual for guidance.* Visually check the connector is 6-pin.

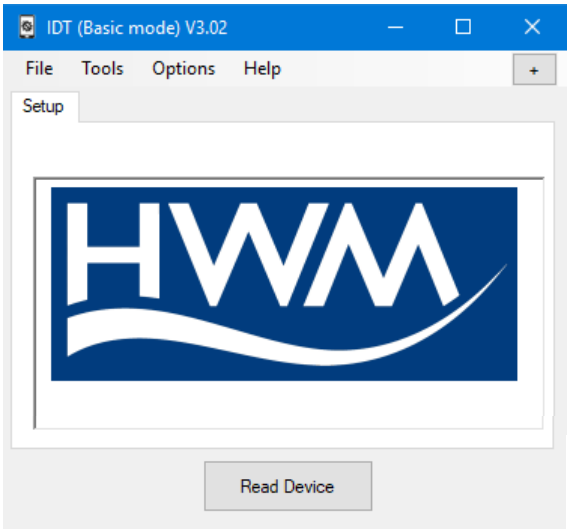
Attach the 6-way cable to the 6-pin connector on top of the SonicSens 3. Tighten the cable to ensure a water-tight connection. The cable can fit either way around.

Attach the other end of the cable to the SonicSens 3 input of the logger.

All connectors should be kept free of moisture.

4.2 CONFIRM SONICSENS 3 IS RECOGNISED

If using the PC version of IDT, connect the logger to the PC using an appropriate cable and adaptor.



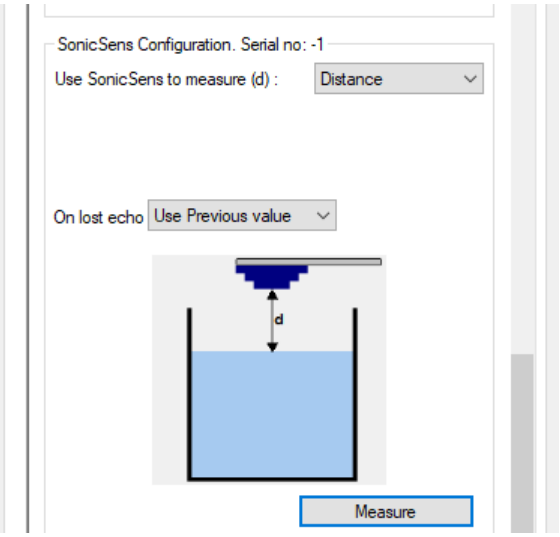
Launch IDT.

Click on “Read Device”.

Confirm IDT can read the logger settings.

Select the “Setup” tab and scroll down.
When the SonicSens 3 has been detected by the logger, IDT will display show a “SonicSens Configuration” panel.

The panel shows a pictorial representation of the sensor head.

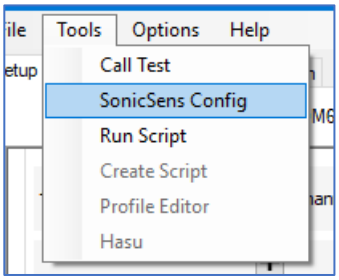


Note: If IDT does not display this, the SonicSens 3 has not been recognised.
Check the cable is correctly fitted.
Check that you are using the latest version of IDT.
Check the logger has the latest firmware.

4.3 SELECT A SUITABLE SONICSENS 3 PROFILE

Invoke the SonicSens 3 Config window:

Use the menu: Tools → SonicSens Config.
(You must have the SonicSens 3 connected to the logger).



Ensure “Measure Distance” is selected.

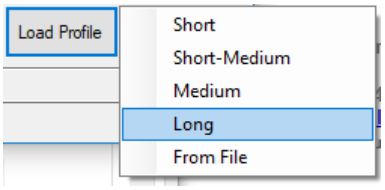
Ensure “Use previous value on lost Echo” is selected.

Note the graph display.

This shows the current profile loaded into the logger.

In particular, note the maximum and minimum distance shown on the graph. Irrespective of the rated range of the logger (as on the datasheet), it will not operate if trying to work outside of the profile range (red dots on the graph).

Click the “Load Profile” button.

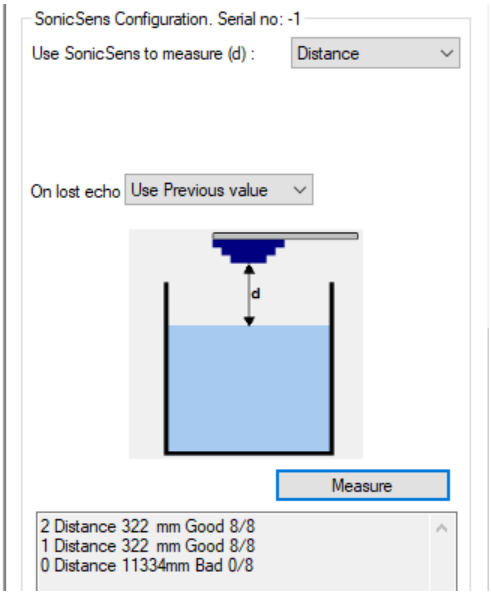


A selection of standard profiles is listed.
Initially, select “Long” as it makes the greatest operational range available for use.

Then click the “Save Profile” button.
This saves the profile settings within the memory of the logger.

Click “X” to close this window.

4.4 TRIAL THE INSTALLATION POSITION



Hold the sensor in the proposed position of installation. Point it vertically at the water surface. Click on “Measure”.

The text box shows measurement results. Measurements will be made approximately every 5 seconds.

If no echo is picked up, the measurement will be listed as “Bad” along with an erroneous distance.

- Check the sensor is pointing downwards.
- Check the sensor is being used within its working range.

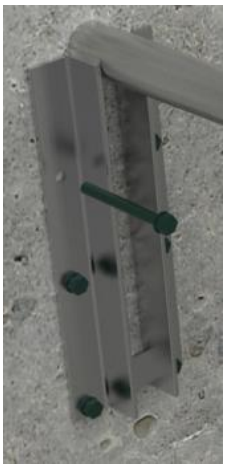
- Check the profile (set as the longest range in an earlier step) was saved (re-open the SonicSens Config window to confirm).

If the signal is reflected OK and the echo is detected, the measurement will be listed as "Good" along with the measured distance. *Proceed with the installation*.

4.5 INSTALLATION OF SONICSENS 3

Decide on location of the SonicSens 3, a suitable bracket for installation and other accessories.

Drill the side of the chamber and fix the bracket into position with stainless-steel fixings.

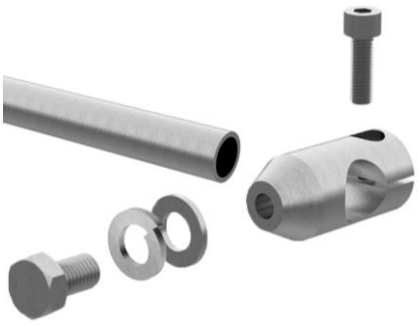


Slide a clamp onto the mounting pole (female thread).

Position the clamp horizontally.

Tighten the clamp to the pole using a 6mm hexagonal key or bit.

Select a stainless-steel bolt for the front of the clamp. Thread a stainless-steel spring washer, and then a flat washer onto the bolt. Fit the bolt onto the front of the clamp, leaving a gap.



Add the mounting bracket with bubble-level to the SonicSens 3 sensor.

Secure in place with the large plastic nut.

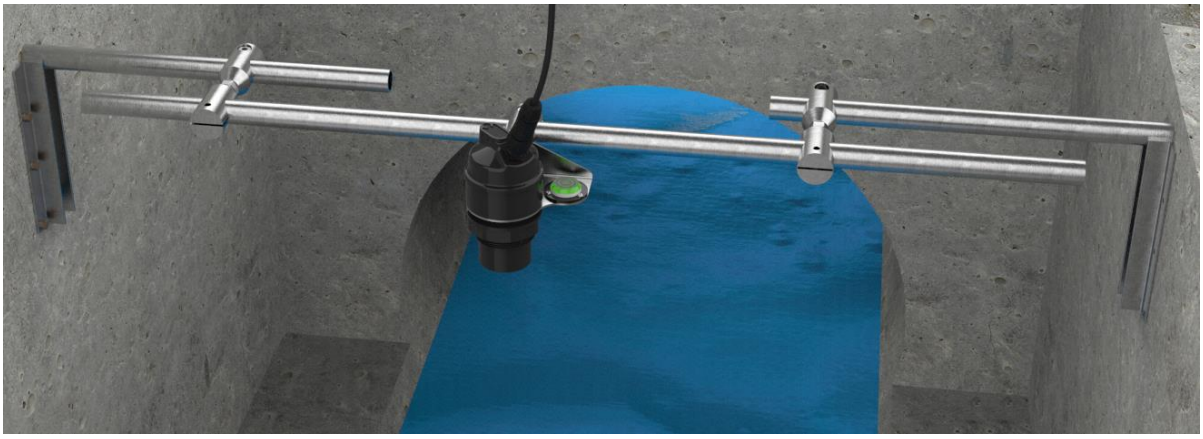
Note: If a submergence shield option is required, it should be fitted along with its O-rings prior to fitting the plastic nut.

Using the key-hole slot in the bracket, slide the bracket onto the clamp.

The two washers should be between the bracket and the head of the bolt.

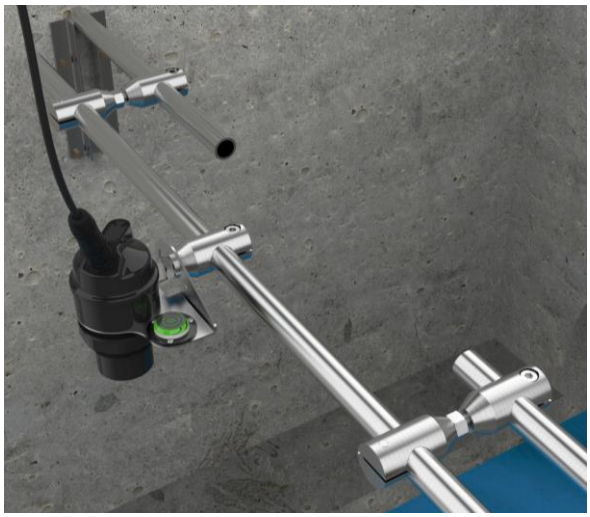
Once in position, use the bubble-level to adjust the sensor until it is level. Then tighten the bolts using a 19mm spanner.

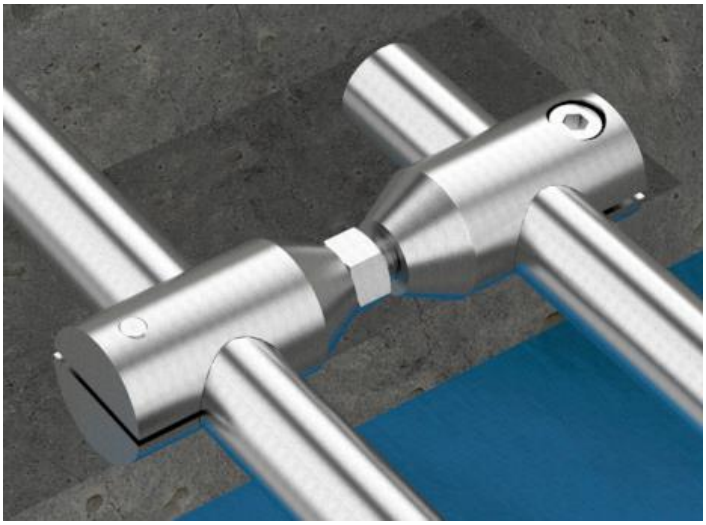
For wide chambers, two brackets should be used, along with a tubular pole to bridge the gap. Several pole lengths are available.



The clamps are available in male and female versions; a pair is required to attach one pole to another, plus a nut, at each support point.

Thread the nut onto the male thread first, then thread the pair of clamps together.

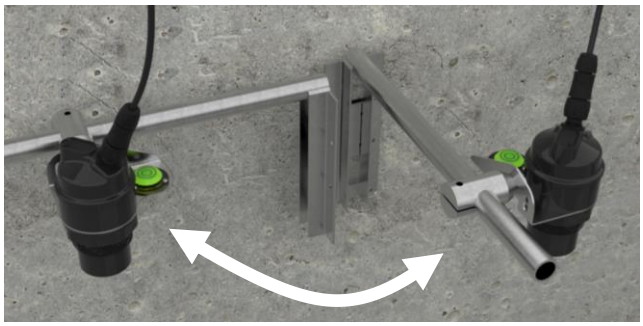




When the pole is in position, the nut should be tightened to secure the assembly.

For small chambers, there may be a requirement to swivel the sensor out of the way to provide access into the chamber.

Use a hinged bracket in these situations. Left-turn and right-turn hinged brackets are available.



After completing work, the hinged bracket can be returned to its regular position.

(The sensor must be levelled in its regular position).

When there is risk of flooding within the chamber, a submergence shield option is available
(2 sizes, dependant on SonicSens 3 model).

Fit as shown opposite. Use O-rings to form an air-tight seal.

The shield will prevent any debris attaching to the sensor, which could affect its functioning and require it to be cleaned.

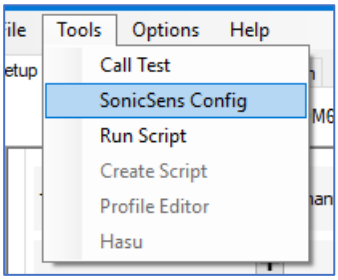
Where the chamber is shallow, the dead band near the sensor may cause range problems. Enquire to HWM whether a stainless-steel deflector plate could be used (not shown). When used, the SonicSens 3 is mounted horizontally and targeted at the center of the deflector plate, which must be mounted near to the sensor (approx. 0.45m, max) and at 45 degrees, reflecting the beam of the unit downwards.

4.6 PROFILE ADJUSTMENT

During initial configuration for position tests, the SonicSens 3 was put into a mode that measured distance with greatest available range. Note that, whilst the logger is now aware of the measurement device, it is not actually requesting measurements from it or logging any measurement data. This requires logger *data channels* to be set up, which will be done later – see section 6.

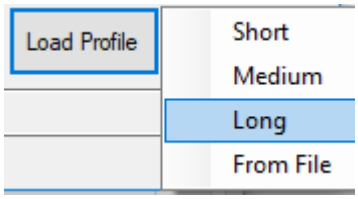
The SonicSens 3 settings now need to be tuned to the conditions of the installation location.

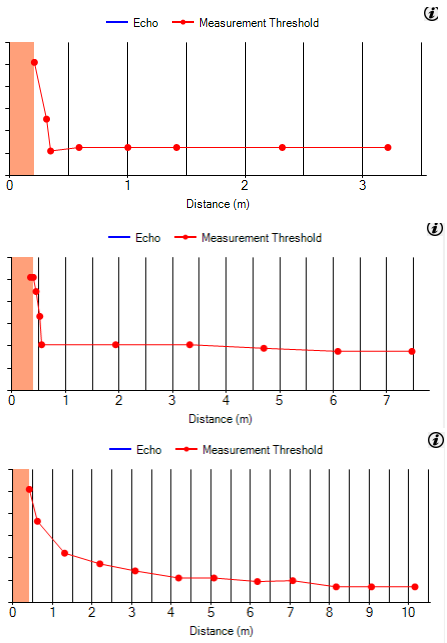
Select “SonicSens Config” from the menu.



Click on the “Load Profile” button.

Select the most appropriate option for the installation.





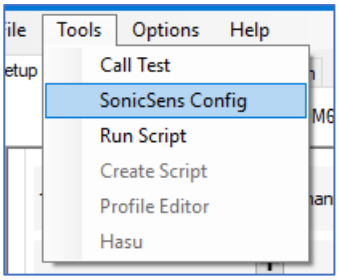
The “most appropriate” selection depends on the expected range of water levels.

- Measure from the lowest part of the sensor to the bottom of the water channel; This will effectively give you the maximum distance that needs to be measured.
- Measure from the lowest part of the sensor to the highest expected water level; This will effectively give you the minimum distance that needs to be measured.
- The “Long” profile gives the greatest range, but at shorter distances accuracy will be less. The burst of pulses in this range takes longer to send, which causes the dead band nearest the sensor to increase.

Choose the most appropriate standard profile for the range of distances (min to max) that needs to be covered. Then click on “Save Profile” to save it to the logger memory.

Having chosen the appropriate standard profile, **which should be OK for most installations**, the reliability of the echo can now be checked.

4.7 ECHO CHECK / THRESHOLD ADJUSTMENTS

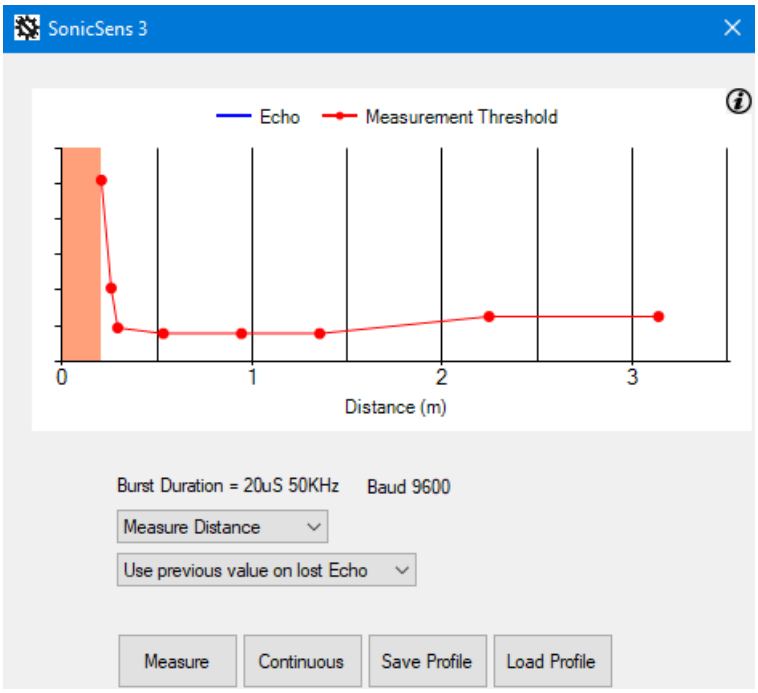


Use the menu: Tools → SonicSens Config.
(You must have the SonicSens 3 connected to the logger).

Ensure “Measure Distance” is selected.

Ensure “Use previous value on lost Echo” is selected.

The current threshold mask is shown (red dots and line on the graph).



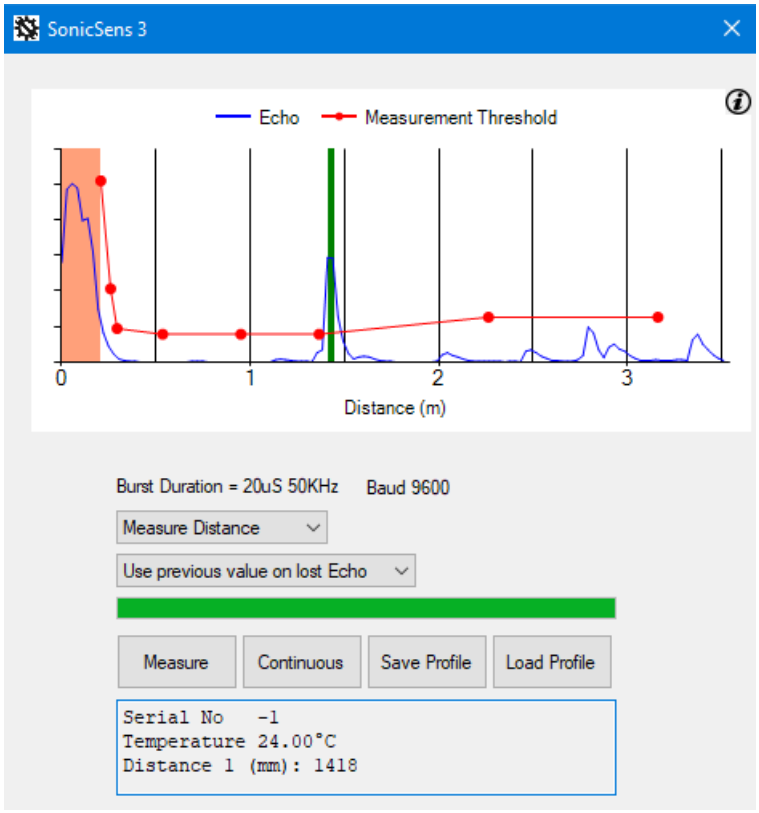
Click the “Measure” button.

The logger instructs the SonicSens 3 to make a measurement.

The distance result is shown in the text box (along with the sensor temperature, which is not relevant at this point).

The echo obtained by SonicSens 3 can be seen graphically.

The echo response is shown in blue, showing a peak. There is a vertical green bar at the distance identified as the distance to the measured water surface.

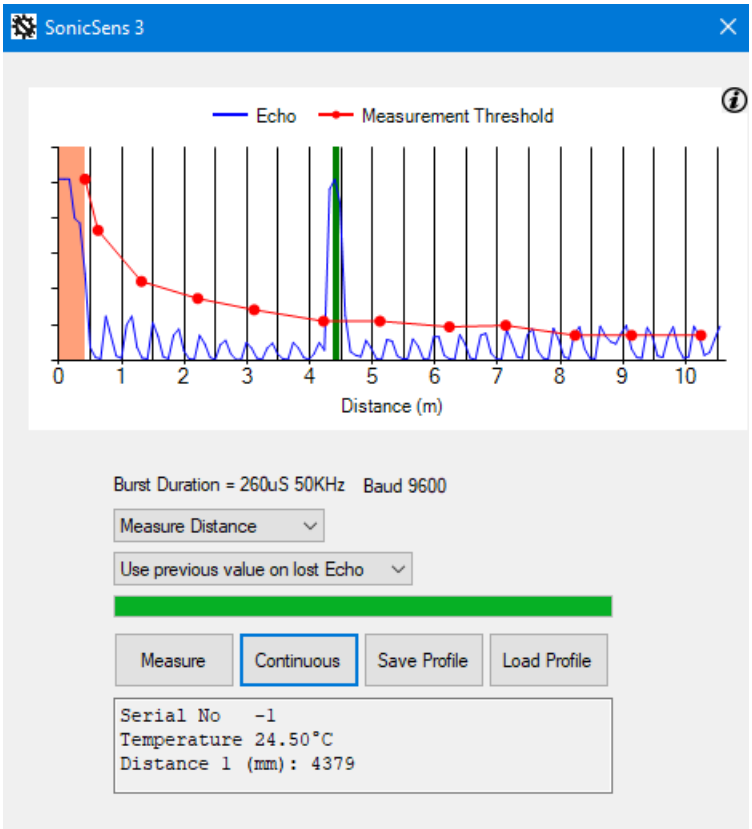


Further along the blue trace there are smaller peaks which represent the echoes that have taken alternative paths to return to the sensor.

The red line shows the threshold line for an echo to be recognised. This line is adjustable, by dragging the dots. When happy with the results, click on “Save Profile” to store them in the logger.

In the graph shown (above), the area before the first peak / green bar is clear of any echo, which is ideal. If there is a small object close to the beam (e.g. a cable) it is possible that it gives an echo that arrives before the true measurement. Wherever possible, the interfering object should be moved. If it cannot be moved, the thresholds can be adjusted to ignore the early echo (drag the dots above the peak). Caution is required however, since it could introduce an additional dead-band for the sensor where measurements cannot be made. Any changes made should be minimal.

Adjustment of the threshold can also be made if the reflected signal is a low peak (due to a turbulent water surface) and is occasionally unreliable. Lowering the threshold slightly may give improvements but should only be used if the standard profiles do not give reliable results. The graph is just one example of the several samples it makes to get a measurement.



Click the “Continuous” button to make repeated measurements to confirm the reliability of the measurement.

Each time it measures, SonicSens 3 sends several bursts of ultrasound, and calculates statistically where the peak is. It is therefore able to compensate for some turbulence at the water surface. Even though the echo response crosses the threshold line at longer distances (see graph opposite), they are ignored because the peak nearest the sensor is the more direct path.

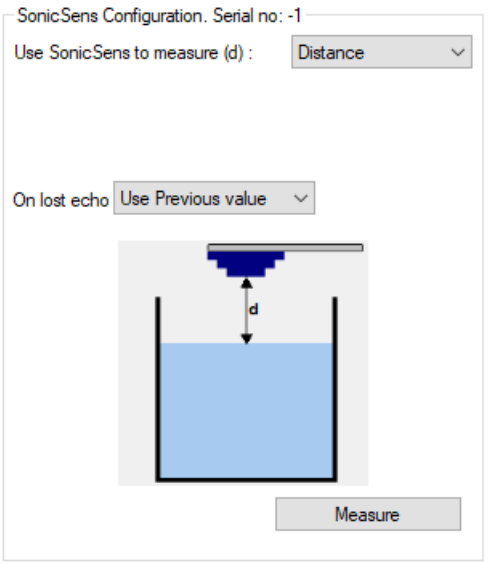
For most situations, loading one of the profiles from the menu gives good results, and no further adjustments are needed.

For further confidence test, repeat the IDT measurement described in section 4.4, which should now show very repeatable results.

Profile adjustment is now complete. If the SonicSens 3 is replaced with a model which has a different range, the process should be repeated from section 4.1.

5 SETUP OF BASIC MEASUREMENTS

5.1 MEASUREMENT OF DISTANCE

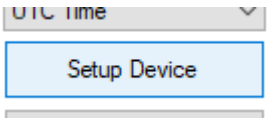


SonicSens can directly measure distance.

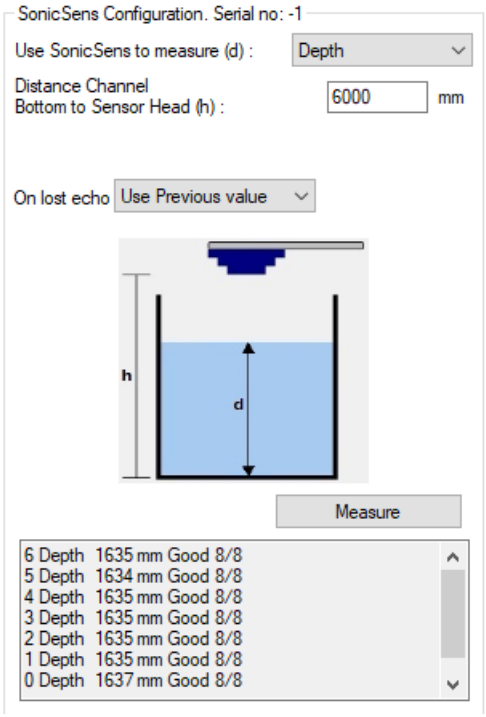
Use the drop-down box to select “Distance”.

Two options exist to determine the response of the SonicSens if an echo is lost. Either the previous value or a user defined fixed value can be used.

When finished, save the settings by scrolling down to the lowest part of the screen and clicking on “Setup Device”.



5.2 MEASUREMENT OF DEPTH



SonicSens can indirectly measure depth.

Use the drop-down box to select “Depth”.

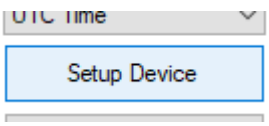
Measure the distance from the bottom of the sensor to the bottom of the channel, in mm. Input this value into the “Distance Channel Bottom to Sensor Head (h)” text box.

Graphically, the measured distance, “d”, is now shown as between the bottom of the water channel to the surface of the water.
This is a result formed by calculating the difference between the distance to bottom of the channel and the distance to the surface of the water.

Click on Measure and confirm the results obtained make sense, then stop the measurement by clicking on the same button.

Two options exist to determine the response of the SonicSens if an echo is lost. Either the previous value or a user defined fixed value can be used.

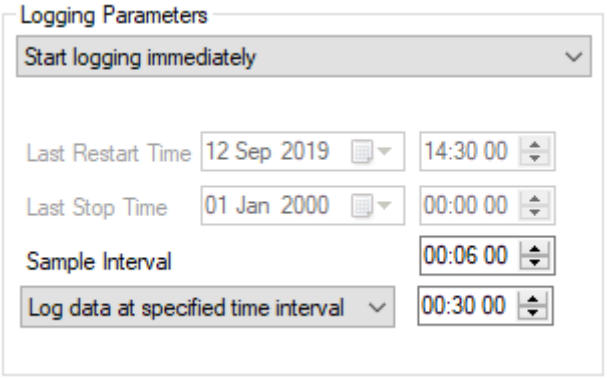
When finished, save the settings by scrolling down to the lowest part of the screen and clicking on “Setup Device”.



6 LOGGING BASIC MEASUREMENTS – SETUP OF DATA CHANNELS

Having set the SonicSens 3 to work correctly, the logger needs to be set up to periodically make measurements using the device.

The “Logging parameters” panel in IDT shows a field called “Sample Interval”. This can be adjusted to set the basic measurement sample period. At each sample interval, the logger will activate the SonicSens 3 and instruct it to make a measurement. Similarly, any other transducers the logger has will also be activated to obtain data samples at the same sample rate.



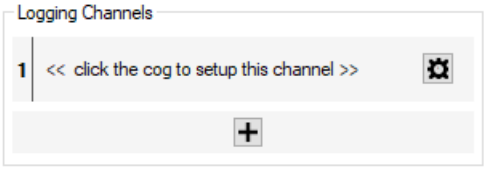
The logged data is not always the same as the sampled data. The logger can be set to look at multiple samples and then make a calculation on them in order to produce a logged data-point. The time interval for this is set using the “Log data at specified time interval” settings.

6.1 DISTANCE OR DEPTH

If the logging activity is not already set up, click on the “ + “ button in the “Logging Channel” panel.

An unassigned Logging Channel is created.

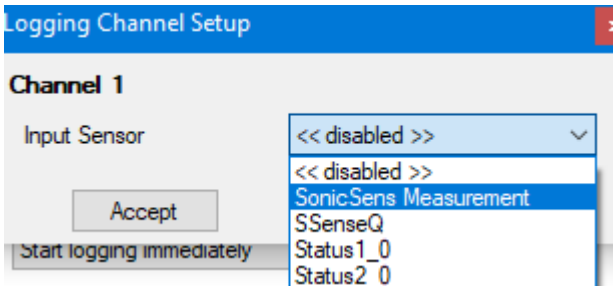
The channel number is shown on the left.
This will be the “channel number” that the data arrives within when it arrives at the DataGate server.



Click on the cog button.

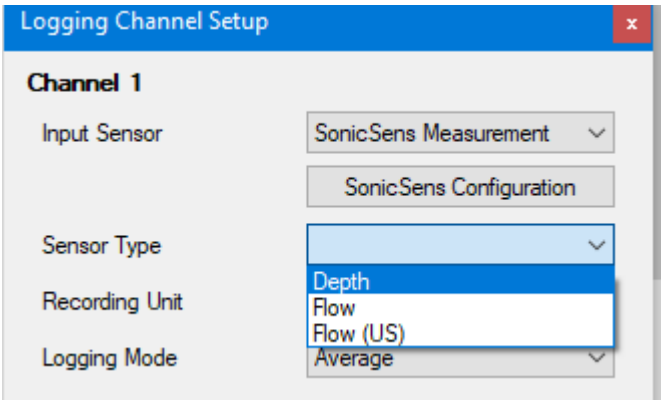
Click on the “Input Sensor” selection box.

Select “SonicSens Measurement”.

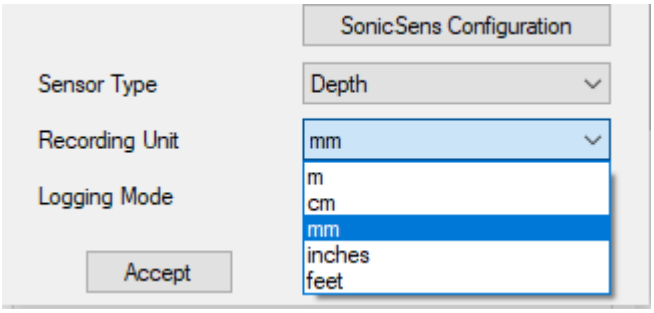


Click on the “Sensor Type” selection box.

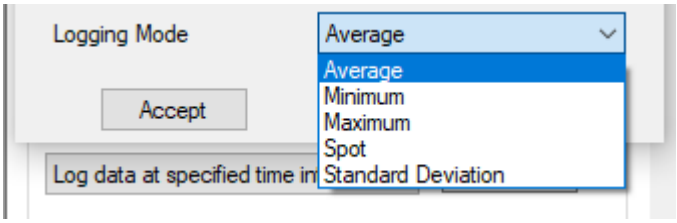
Select “Depth”
(or “Distance” if that was set earlier).



Select the “Recording Unit” as mm, which is the unit of measure used by the SonicSens 3.

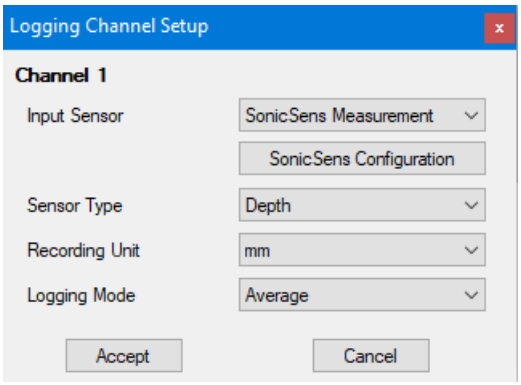


Select the required “Logging Mode”.

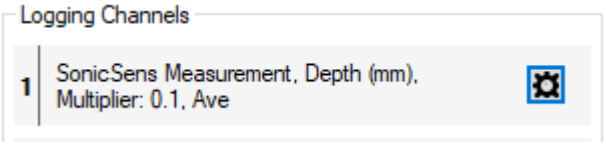


Spot = Single sample made at the Logging Rate (no other samples are made).
Minimum = Minimum of all samples taken between now and the previous log time.
Maximum = Maximum of all samples taken between now and the previous log time.
Average = Average of all samples taken between now and the previous log time.

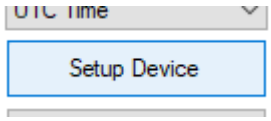
Click on the “Accept” button.



The logging channel has now been set up.



Save the settings by scrolling down to the lowest part of the screen and clicking on “Setup Device”.

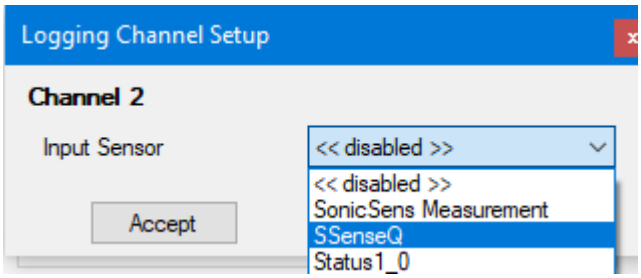


6.2 SONICSENS 3 - MEASUREMENT QUALITY MONITORING

In a similar manner to 6.1, a channel can be set up to monitor the quality of the SonicSens 3 data.

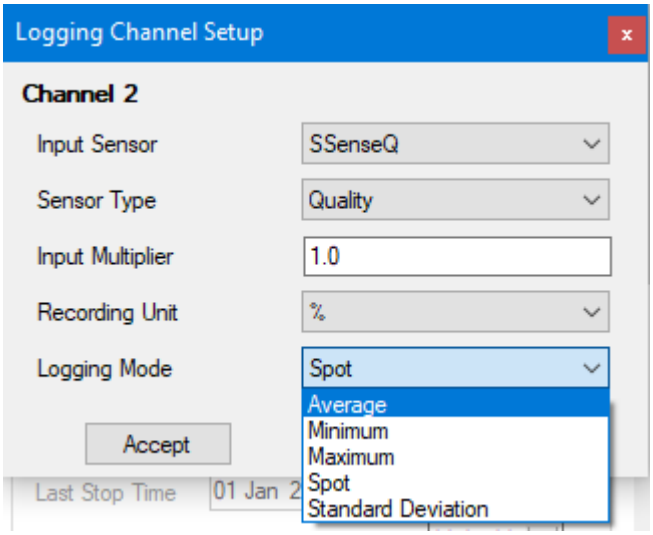
This is a measure derived from the number of “good” and “bad” measurements that were obtained from the measurement system of SonicSens 3.

For this, select an Input Sensor of “SSensQ”.

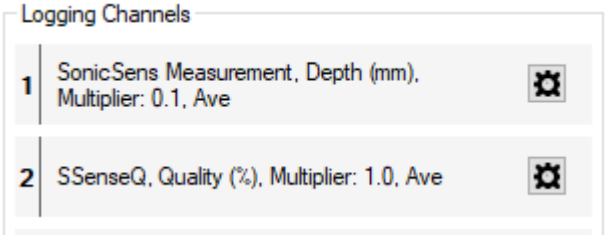


Select the other settings as shown opposite.

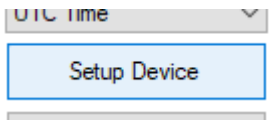
Then click on “Accept”.



The channel is added to the list of those being logged.



Save the settings by scrolling down to the lowest part of the screen and clicking on “Setup Device”.



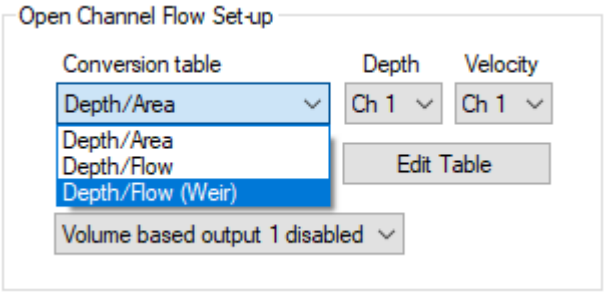
7 SETUP OF ADDITIONAL MEASUREMENTS

7.1 FLOW OF WATER FROM A WEIR

The SonicSens 3 can be used to indirectly measure the water flowing from a weir. This requires the SonicSens measurement to be used as an input to the “Open Channel Flow Setup” panel (also called the FlowOCH channel). This channel requires the geometry of the weir to be entered. It then acts as a flow calculator, converting the depth of water into a flow calculation. SonicSens 3 can provide the necessary depth of water to be input into the calculation.

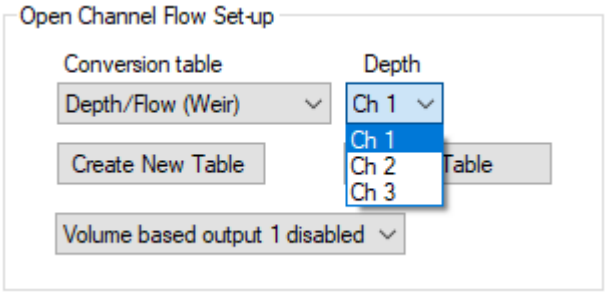
Select the Setup tab and scroll to the “Open Channel Flow Set-up” panel.

From the “Conversion table” selector, choose “Depth/Flow (Weir)”.



The depth input can come from any viable source. Use the “Depth” selector tool to map the depth input to one of the Logging channels.

In the example in this manual, SonicSens 3 depth is being logged as Channel 1, so “Ch 1” must be selected.

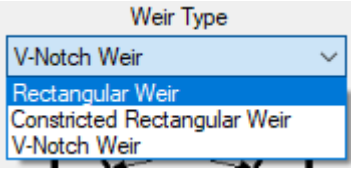


Weirs can have different shapes. Click on “Create New Table” to begin the process of entering the geometry of the weir.

Note: The depth of the water is measured from the bottom of the water channel. The weir blocks the flow of water until its depth exceeds the minimum height of the weir. This point is known as the “crest”. This, and other dimensions need to be measured from the-site.

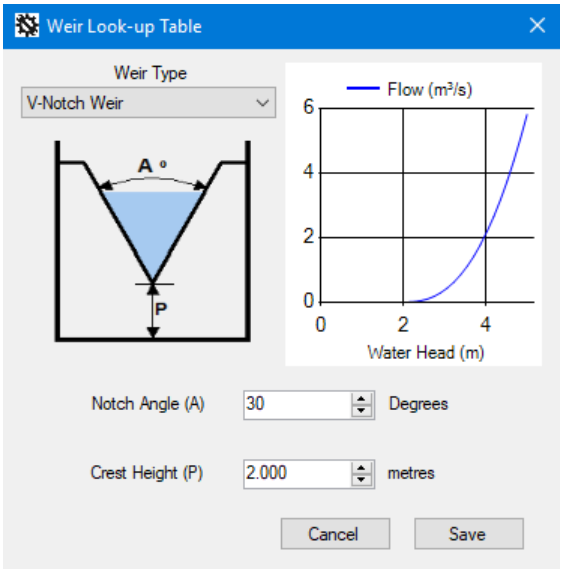
Select the Weir Type.

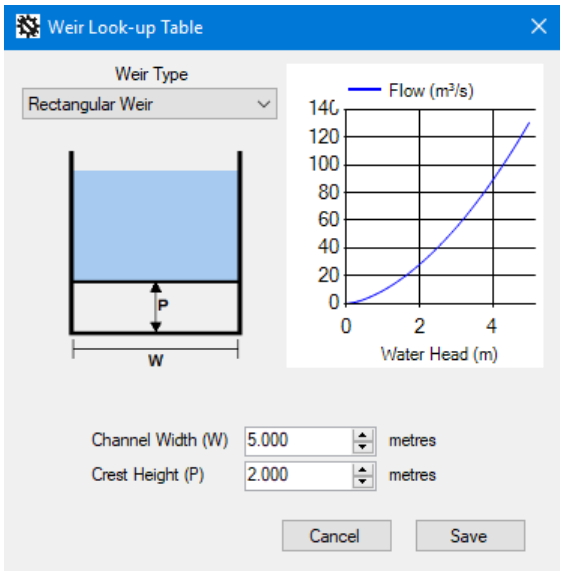
3 options are available.

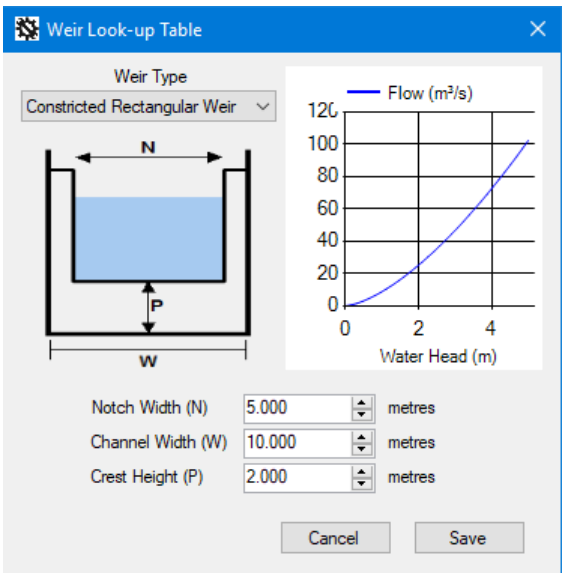


Enter the measurements required, according to the selection made.

When finished, click on “Save”.



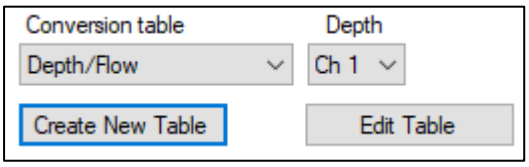


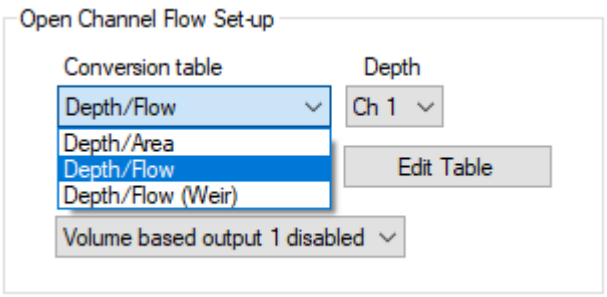


For a weir of a different shape to the above options, but where the “depth to flow” characteristics are known, they can be entered in tabular form.

Change the selection to “Depth / Flow”.

Then click on “Create New Table”.



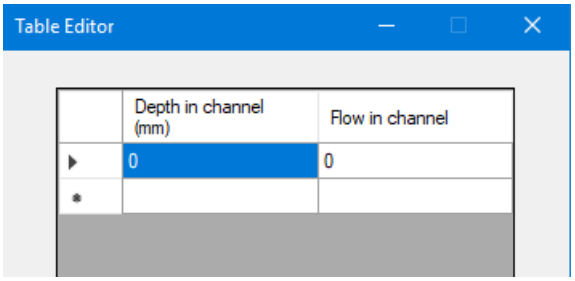


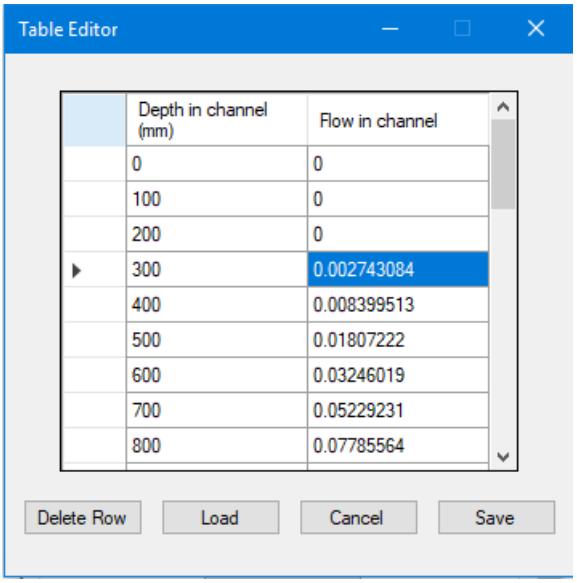
Enter the Depth / Flow characteristics.

(There will be no flow until the crest is reached, then flow will increase with increasing depth).

Click in the dotted box to add a new line. Click any other box to edit.

- The depth must be entered in mm.
- The flow rate must be entered in m^3/s.





(Using one of the standard weir shapes, described earlier, calculates and produces such a table from the entered geometry).

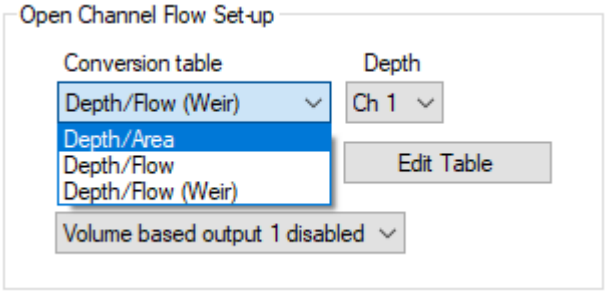
When finished, click on “Save”.

7.2 FLOW OF WATER THROUGH AN OPEN CHANNEL

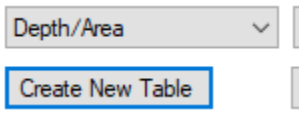
If the SonicSens 3 is used with a logger that also has a means of measuring the velocity of the water, the flow can be calculated.

Flow (i.e. volume) = cross-sectional area of water X velocity X time.

In the Open Channel Flow Set-up panel, select a Conversion Table of “Depth / Area”.



Then click on “Create New Table”.



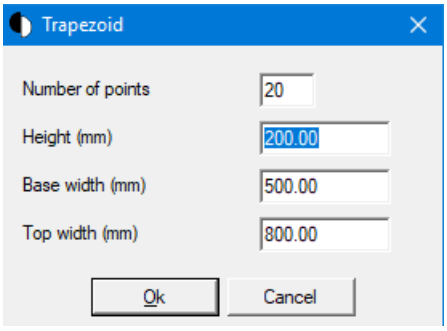
The cross-sectional area of the water depends on the shape of the water channel and the depth of water. Depth of water is also affected by any sediment in the channel.

The cross-sectional area of the channel (which should also be where the velocity is measured) can be input in graphical form, which is converted to a table. Channel shapes can be built-up from basic shapes stacked on top of each other.

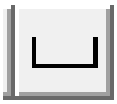
For instance, the shape below consists of a trapezoid plus a rectangle.

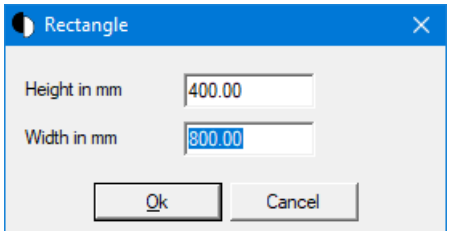
Enter the lowest part of the channel first, followed by subsequent changes in shape to build up the over-all shape of the channel.

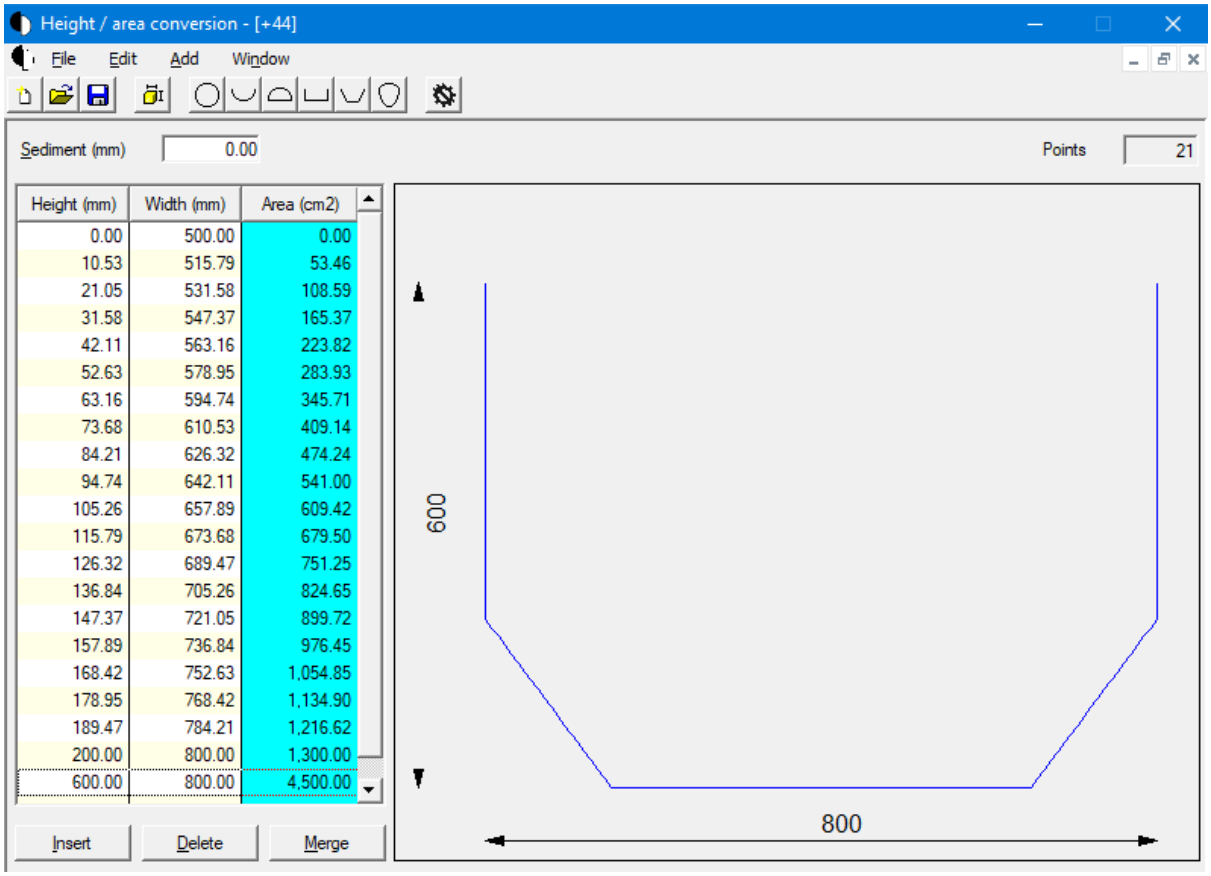
(1)



(2)





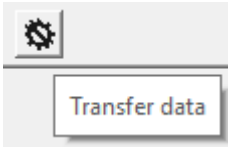


The table is automatically completed from the shape and dimensions. It can be further adjusted by inserting lines or deleting lines from the table. The cells with height and width data can be edited.

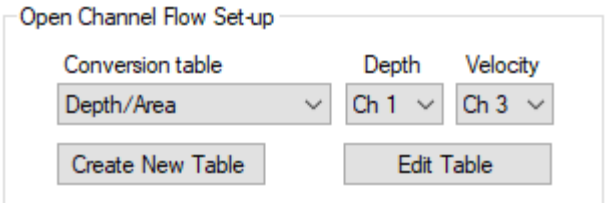
A sediment depth can be added to reduce the area.

The cross-sectional area description can be saved to the PC if required, for later use.

The cross-sectional area description must be saved to the logger using the “Transfer Data” icon.



Complete the setting by choosing the logging channel number that is recording the velocity measurement (i.e. Ch 3, in our example).

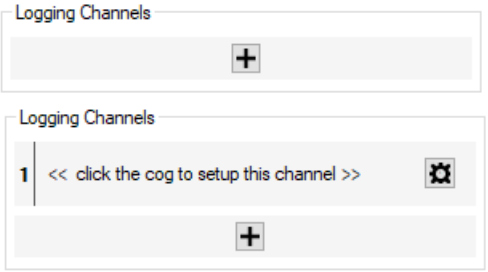


8 LOGGING ADDITIONAL MEASUREMENTS

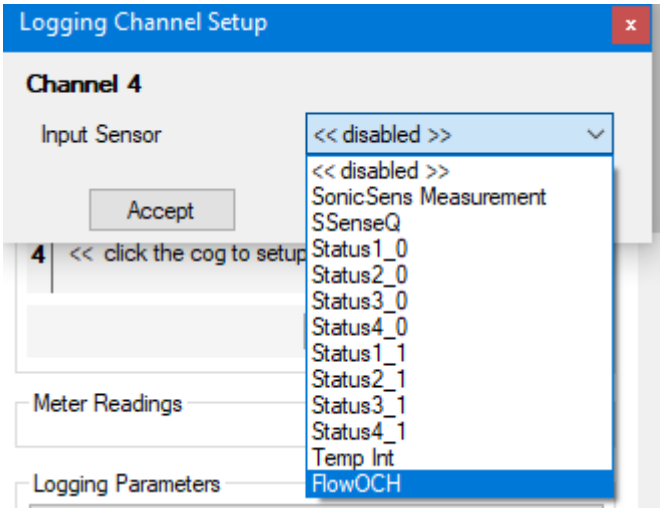
The additional measurements (see section 7) used the FlowOCH (Open Channel Flow) calculator. In order to log the calculated results, a Logging Channel must be set up.

Click on the " + " icon within the Logging Channels panel.

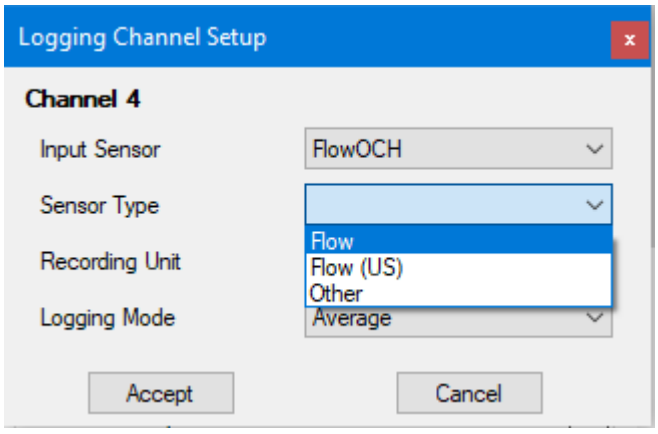
Click on the cog icon to setup the logged data channel.



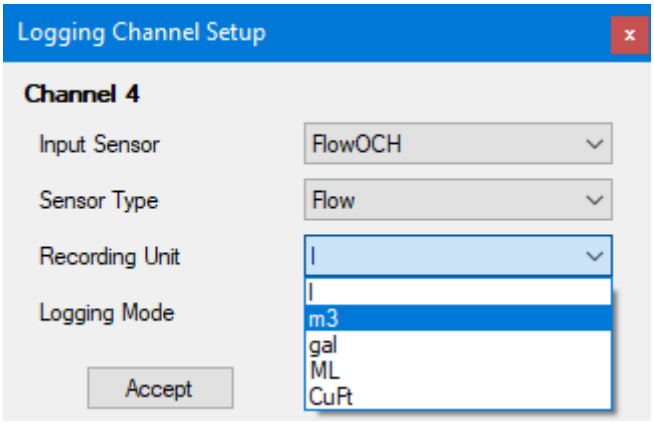
Select "Flow OCH" as the "Input Sensor" (although it is actually a calculator, dependent on the input from other sensors).



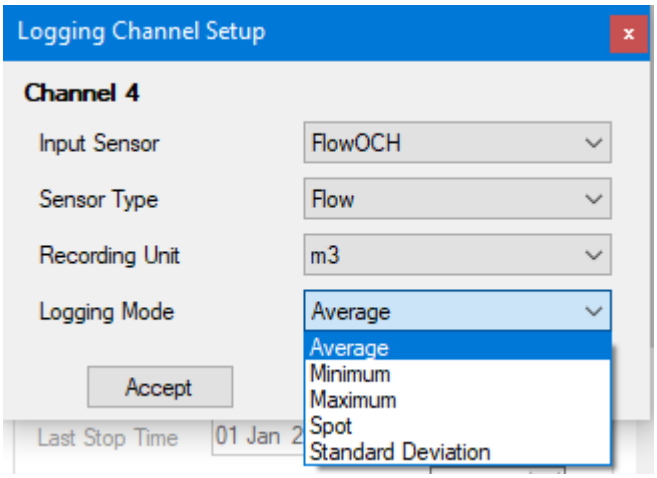
Set the "Sensor Type" to "Flow".
(This also determines what Units of measure are available within the Recording Unit selector).



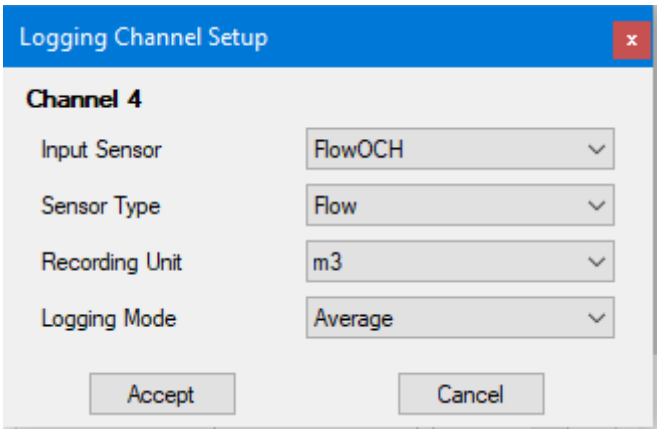
Select the recording unit as required, e.g. m^3.



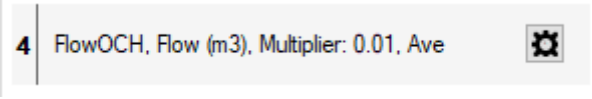
Select an option for the logging mode.



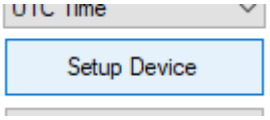
When the selections are complete, Click on "Accept".



The settings are summarised in the panel.



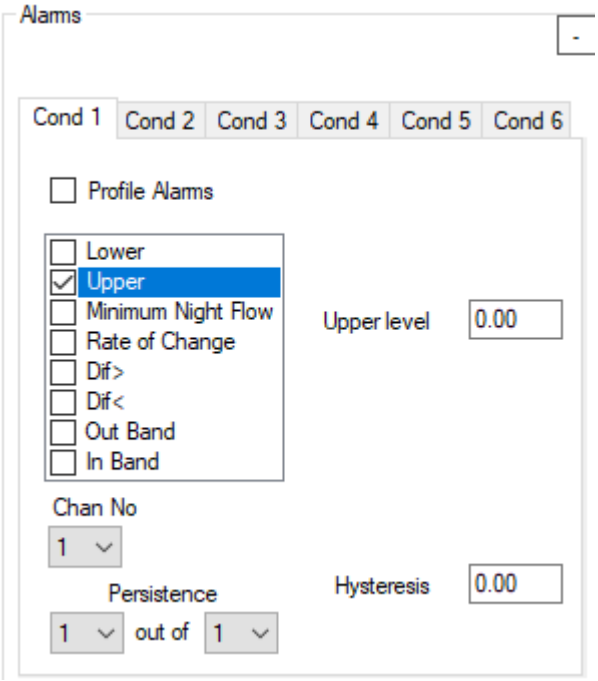
Save the settings by scrolling down to the lowest part of the screen and clicking on "Setup Device".



9 SETUP OF ALARMS

Measurement results that are logged can be checked for a variety of conditions that should cause an alarm. Setup of and monitoring for an alarm condition is a general logger function, not specific to SonicSens 3.

Consult the IDT manual for how to setup an alarm condition on a channel.



10 ADDITIONAL OPTIONS

10.1 VOLUME-BASED PULSE OUTPUT

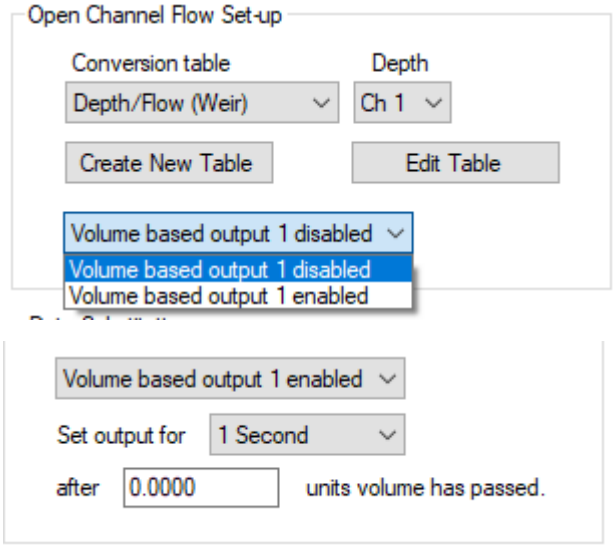
Where supported by the logger model, it is possible for the logger to generate a pulse of 1-20s duration on an output of the logger. The timing of the start of the pulse is based on a set volume of fluid being measured. The pulse repeats each time the specified volume of fluid passes. The output pin can be used to activate external (unspecified) equipment.

For loggers supporting this feature, the volume and timing of the pulse can be set as follows:

In the Open Channel Flow Setup panel,

Select “Volume-based output 1 enabled”.

Set the required pulse duration and the number of units of volume required to pass to activate each pulse event.

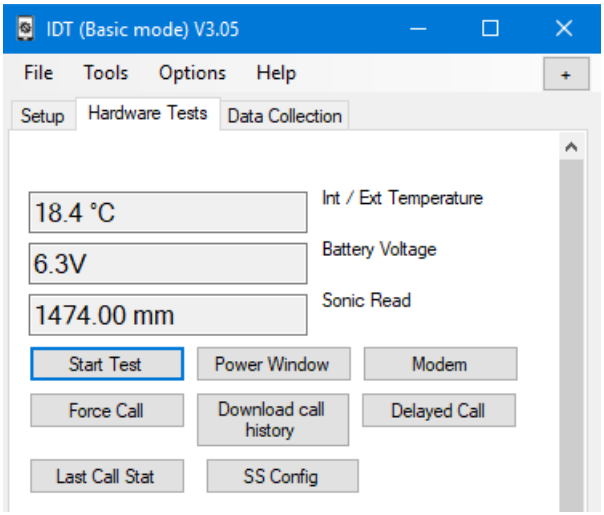


10.2 SONICSENS 3 TESTS

Live data from SonicSens 3 can be displayed using the “Hardware Tests” tab.

Click on “Start Test”. The data will be displayed along with the data of other fitted channels.

The battery voltage is relevant to SonicSens 3, as it is powered by the logger battery.



11 USER-SERVICEABLE PARTS

SonicSens 3 is a sealed unit and has no user-serviceable parts.

Suspect units can be returned to the HWM service center for investigation or re-calibration upon completing an on-line RMA form (Return Materials Authorisation).

https://www.hwmglobal.com/hwm-rma/

Ensure the unit is cleaned with a mild cleaning solution and soft brush or brush, disinfected, and dried prior to shipment.

12 TROUBLESHOOTING

Incorrect measurement:

- Check SonicSens 3 is not contaminated with dirt or debris. Clean using a mild cleaning solution and a soft cloth or brush if required.
- Check the SonicSens 3 is level.
- Check the SonicSens 3 fitted has the correct range.
- Check the SonicSens 3 profile settings being used are suitable.
- Check the SonicSens 3 beam cone has no obstacles.

SonicSens3 not found:

- Check latest version of IDT is being used.
- Check battery voltage of logger is good.
- Check cable between SonicSens 3 and the logger is in an OK condition, with no damage or water ingress.

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