



SVANTEK

USER MANUAL



SV 258 PRO

BUILDING VIBRATION & NOISE MONITORING STATION

Warsaw, 2023-01-30

Rev. 3.00

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This User Manual presents the controller firmware revisions: **6.09** for the SD270-PRO type and **3.10** for the SD270A-PRO type.

This User Manual refers to the family of the SVAN 958 measuring instrument (SVAN 958 with the firmware revision **3.26.3** and SVAN 958A with the firmware revision **4.16.3**).

The succeeding software revisions (marked with the higher numbers) can change the view of some displays presented in the text of the manual.



WEEE Notice: Do not throw the device away with the unsorted municipal waste at the end of its life. Instead, hand it in at an official collection point for recycling. By doing this you will help to preserve the environment.

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IMPORTANT NOTES BEFORE USE

- ✓ *The SA 277C microphone outdoor kit should be installed vertically with the microphone pointing upwards! Improper installation may damage the device because of possible water flooding, which leads to the loss of the warranty.*
- ✓ *Before installing the station at the measurement site, make sure that the protective caps on the four anti-bird spikes of the SA 277C outdoor microphone kit are removed. It is recommended to use the protective caps during transportation, storage and other operations with the instrument like, laboratory calibration, etc. to avoid personal injury.*
- ✓ *Only SVAN 958 and the controller can be disconnected and removed from the station case by the user. All other disassembling work should be performed strictly by an authorized service team.*
- ✓ *The producer does not recommend removing the controller without a sound reason. Double check that the controller has a good fixation in the connector after reconnecting.*
- ✓ *Do not remove the battery from the case! This operation must be done only by the authorized service.*
- ✓ *Working as a part of the station, SVAN 958 is powered from the external source and doesn't use its internal batteries. Internal instrument's batteries must be removed for correct system operation and safety reasons.*
- ✓ *The correct connection of the accelerometer or microphone is not signalled by the controller therefore it is recommended to perform a test measurement each time the station is turned on.*
- ✓ *During station operation, it is recommended to charge the internal and external batteries as often as possible; this will extend battery life. It is necessary to charge the battery after any total discharge.*
- ✓ *Monitoring station and/or SB 272 should not be stored for a long time with discharged batteries. Storing with batteries in discharged condition may damage them.*
- ✓ *If Monitoring station and/or SB 272 are planned to be stored for a long period of time, it is recommended to charge their batteries to 100% capacity. Batteries should be charged at least once per 6 months.*
- ✓ *If the storage period is longer than one year, a discharge/charge cycle must be performed. To do this, leave the device turned on until the battery is completely discharged. Then charge the battery to 100% capacity.*
- ✓ *Monitoring station and SB 272 have their own chargers, which are incompatible: SB 270 is a waterproof power supply for SV 258 PRO, whereas SB 273 is an indoor charger for SB 272.*
- ✓ *The windscreen influences the free-field characteristics of the SA 277C outdoor microphone protection; therefore, it is important to check its condition regularly. In the case of visible degradation of the foam surface it must be replaced by the new one.*
- ✓ *If you use desiccator (silica gel) inside the outdoor microphone protection, it should be regenerated after some period of use, when it changes colour to light grey, by drying it for 3 hours in a temperature of 150°C. Desiccator should be inspected at least every two weeks, and more often when used in conditions of high air humidity.*

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1 INTRODUCTION

SV 258 PRO is an outdoor monitoring system based on the **SVAN 958** class 1 vibration and sound four-channel level meter dedicated for ground and building vibration applications. The portable and battery powered station can be used for a variety of monitoring applications including construction site monitoring, tunnelling and blasting.

The IP 65 rated case contains a lead-acid battery which operating time can be easily extended by connecting an external battery or a solar panel. The intelligent charging unit allows to use a solar panel without expensive controllers and heavy batteries.

The station case is fitted with very robust, waterproof connectors (military standard) and comes with an IP 65 external power supply. The system uses a low-noise, hermetically sealed tri-axial piezoelectric accelerometer enabling the outdoor use without additional enclosures. The accelerometers' signal ground is insulated from the mounting surface and outer case to prevent ground loops. All accessories fit conveniently into a second carrying case.

The monitoring station uses the mobile modem for the remote communication with the Internet. **SvanNET**, a relay server, supports the connection between PC and the station allowing the usage of all types of SIM cards, regardless of whether they have a public or private IP address. The use of **SvanNET** gives access to the status of the monitoring station also via mobile phone or tablet.

The basic firmware of SVAN 958 and SVAN 958A is dedicated for general four channel measurements and the user may configure all channels independently. This firmware is supplied as a standard with SVAN 958A and can be used for monitoring of vibration and sound levels when SVAN 958A is a part of the monitoring station.

The special firmware of SVAN 958A (SVAN 958AG) is dedicated for building vibration measurements and uses methods based on Peak Particle Velocity and Dominant Frequency. Measurements of human vibration in buildings are also possible as the instrument allows simultaneous measurement of velocity and acceleration of vibrations with two independent steps of recording.



Note: This manual describes SV 258 PRO comprising SVAN 958 or SVAN 958A with the basic firmware (rev. 4.16.3).



1.1 FEATURES

- SV 258 PRO is a portable monitoring station housed in an **IP 65 waterproof case** dedicated for periodic outdoor measurements.
- **Human Vibration** in buildings measurements in accordance with ISO 2631-1, BS 6472 and DIN 4150-2.
- The station is based on the **SVAN 958** instrument which can be easily removed from the case and used as a hand-held sound and vibration level meter and analyser.
- **Class 1** noise measurements are performed over a very wide dynamic range over 110 dB from 3 Hz up to 20 kHz.
- **Time history** of measurement results is saved in the file.

- The station can perform a real-time frequency analysis in **1/1 Octave** or **1/3 Octave** bands and save spectra as Time history.
- The **mobile modem** provides fast data transfer over the Internet to a PC with a standard Internet connectivity.
- The remote communication settings are automatically adjusted to connect to the **SvanNET** Internet service.
- The station can be powered from an internal battery, external battery or external DC power supply and is ready for direct connection to a solar panel. The powering is managed by the intelligent charging unit.
- The station uses a waterproof **charger** that is designed for the outdoor use.
- Military standard **connectors** provide reliable, robust and waterproof cable connections.

1.2 ACCESSORIES INCLUDED

SVAN 958	Four channel Class 1 Sound & Vibration Analyser with the standard firmware
SM 258 PRO	Outdoor monitoring station for SVAN 958 including: 17Ah battery, mobile modem (SP 270) and external power supply (SB 270)
SC 16	USB 1.1 cable
SC 61	TNC to BNC integrated connector
SV 207B	Building Vibration Measurement set including: triaxial accelerometer 1000 mV/g (SV 84), mounting adapter with special levelling system
SC 278	Cable for SV 84 and SV 258
SA 251	Carrying case for SV 207B, SB 270 and accessories to SV 258

1.3 ACCESSORIES AVAILABLE

SV 208A	Sound measurements set: Microtech Gefell Pre-polarised condenser microphone (MK 255), microphone preamplifier (SV 12L), outdoor microphone kit (SA 277), desiccator (SA 270D), preamplifier cable (SC 277), carrying case (SA 250)
SV 36	Class 1 sound calibrator: 94/114 dB@1000 Hz
SV 111	Vibration Calibrator for HVM
SB 272	External battery for SV 27x monitoring stations series (33 Ah) including indoor charger
SB 271	Solar panel for SV 258 monitoring station (40 W)
SA 206	Mast with adjustable height from 1.5 meter to 4 meters
SP 272	Light and sound alarm, 12V DC

1.4 SOFTWARE OPTIONS AVAILABLE

The standard firmware of SVAN 958 includes Level Meter function only. Other functions are optional:

SF 258_1	1/1 octave analysis option
SF 258_2	1/3 octave analysis option
SF 258_3	1/1 & 1/3 octave analysis option
SF 258_4	FFT analysis option



Note: The software options for the instrument can be purchased at any time as only the introduction of a special unlock code is required for their activation in a specific instrument. Contact your local Svantek distributor for further information and costs for these options.

2 MONITORING STATION SET

2.1 SV 258 PRO STANDARD SET AND OPTIONAL ELEMENTS

The SV 258 PRO station is delivered in two carrying cases. The smaller waterproof case containing the internal battery, controller, modem, SVAN 958 measuring instrument and external connectors serves as a main outdoor monitoring unit.

All accessories are placed in the second transportation not waterproof case.

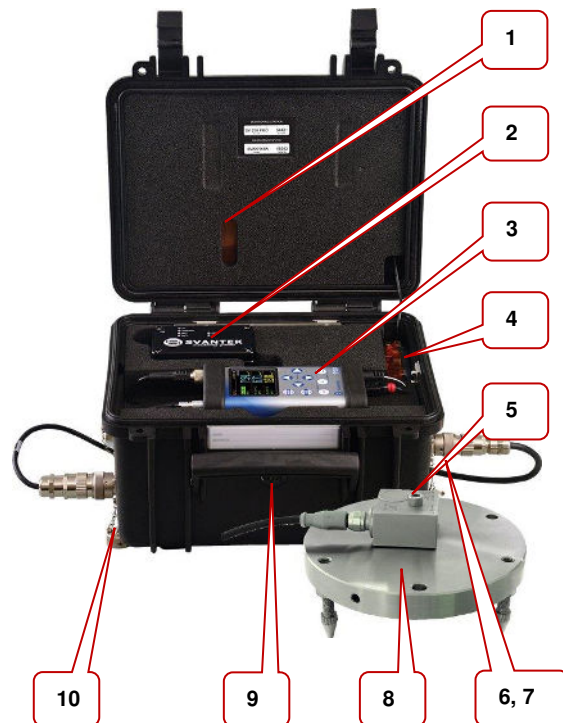


The SV 258 PRO station includes:

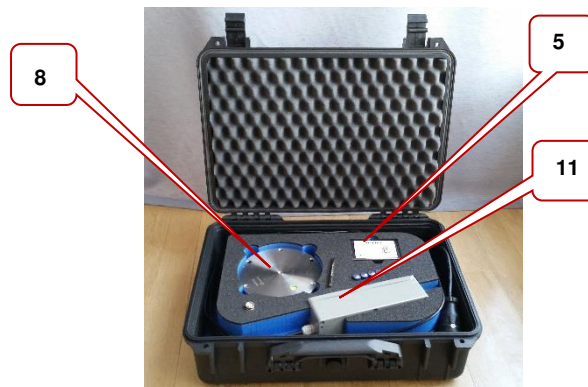
- waterproof case with battery, charging unit and connectors (1),
- controller (2),
- SVAN 958 measuring instrument (3),
- mobile modem (4),
- low-noise, hermetically sealed tri-axial piezoelectric accelerometer enables an outdoor use without additional enclosures (5),
- accelerometer mounting adapter (8) and
- power supply unit.

The waterproof case is equipped with:

- external power connector (6),
- external interface connector (7),
- air pressure compensation valve (9)
- two input signal connectors (10).



The power supply unit (11) and vibration accelerometer (5) are packed inside the second transportation case together with the mounting adapter (8).



Additional accessories for the SV 258 PRO system, not included in the standard set, but in many applications, essential for reliable system operation and task performance are:

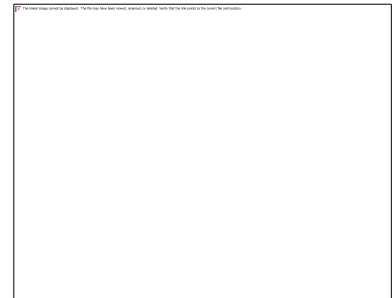
1. Outdoor sound measurement set (**SV 208A**) - see Chapter [2.2.1](#),
2. Vibration field calibrator (**SV 111**) - see Chapter [2.2.2](#),
3. Sound calibrator (**SV 36**) - see Chapter [2.2.3](#),
4. External battery 33 Ah including indoor charger (**SB 272**) - see Chapter [2.2.4](#),
5. Solar panel 40 W (**SB 271**) - see Chapter [2.2.5](#),
6. Light and buzz alarm lamp, 12V DC (**SP 272**) - see Chapter [2.2.6](#),
7. Mast with adjustable height from 1.5 meter to 4 meters (**SA 206**) - type: Manfrotto 269BU.



2.1.1 Waterproof case

The SV 258 PRO waterproof case (IP 65) houses and protects the main elements of the monitoring station:

- controller,
- mobile modem,
- SVAN 958 measuring instrument,
- other internal elements such as: rechargeable battery, connectors, cables, circuit boards.



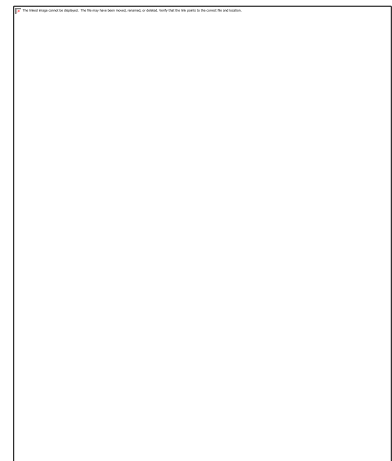
Note: Only SVAN 958 and the controller can be disconnected and removed from the station case by the user. All other disassembling work should be performed strictly by an authorized service team.

SVAN 958 can be removed from the case by the user and used as a hand-held vibration and sound meter.

To do this the user should:

1. switch off SVAN 958 by pressing together the **<Alt>** and **<Start/Stop>** keys,
2. unscrew the input connector and disconnect the input cable from SVAN 958,
3. disconnect the USB and power cables from SVAN 958.

In order to use SVAN 958 as a handheld meter, batteries must be inserted.

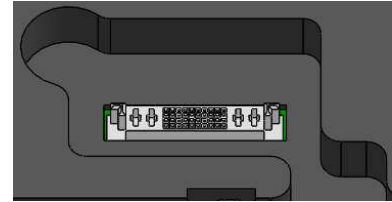




Note: As a part of the SV 258 PRO station, SVAN 958 is powered from the external source and doesn't use its internal batteries. Before inserting SVAN 958 to the station slot, internal instrument's batteries must be removed for correct system operation and safety reasons – see Chapter 2.1.3.

The controller is fixed in the station case by a Signal Power Combo connector and can also be removed from the case. To do this, pull the controller up and remove it from the slot.

To put it back, put the controller in the slot and press on it to achieve a good fixation with the connector.



Note: The producer does not recommend removing the controller without a sound reason. Double check that the controller has a good fixation in the socket after reconnecting!



Note: After insertion the controller to the station slot the station is turned on automatically. To turn it off, use the instrument keyboard – see Chapter 3.5.2.

The monitoring station case is equipped with the air pressure compensation valve that enables you to open the case easily if the internal pressure is lower than the atmospheric one.

To absorb any remaining moisture after closing the lid, use the silica gel bags (optional accessory).

The valve should be released if opening the top lid is problematic.



Note: The valve must be closed when the station is used outdoors, otherwise the case is not sealed against moisture.

The station case is equipped with four Souriau UTO type connectors for:

- input signals from the tri-axial piezoelectric accelerometer (**INPUT 1-3**),
- input signal from the microphone (**INPUT 4**),
- powering station and charging the internal battery (**DC SUPPLY**),
- external interface for the digital input/output (**EXTERNAL INTERFACE**). In the standard station configuration, this socket can be used for alarm signals output (for example, SP 272 light and sound alarm).



To connect a cable to a case socket, start by lining up the key on the plug and socket, then lock the connector by turning the ring clockwise (only the ring close to the socket will rotate).



To disconnect a cable, push the connector towards the station and turn it counter clockwise. New connectors require more force so using a closed hand is more effective than using only fingers.



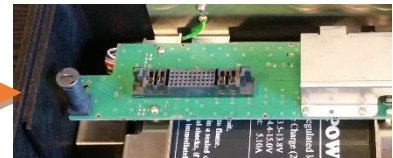
The station is equipped with a Lead-Acid rechargeable battery (17Ah, 12V), located in the bottom of the case.

The battery can be used in any chosen position without the risk of leakage. The battery has a pressure relief valves that allows safe dispersal of any excess pressure inside the cell (VRLA).

Battery capacity may vary depending on the ambient temperature.



The safety fuse is located on the left side of the controller connector plate.



Note: Do not remove the battery from the case! This operation must be done only by the authorised service.



Note: Battery is not restricted for air, surface and water transport. Classified as non-hazardous material (IATA/ICAO Special Provision A67, DOT-CFR Title 49 parts 171-189, IMDG amendment 27).



Note: During station operation it is recommended to charge the internal battery as often as possible; this will extend battery life. It is necessary to charge the battery after any total discharge.



Note: The station should not be stored for a long time with a discharged battery. Storing with batteries in discharged condition may damage them.



Note: If the station is planned to be stored for a long period of time, it is recommended to charge its battery to 100% capacity. The battery should be charged at least once per 6 months.



Note: If the storage period is longer than one year, a discharge/charge cycle must be performed. To do this, leave the device turned on until the battery is completely discharged. Then charge the battery to 100% capacity.

The case lid is equipped with an antenna for the mobile modem.



2.1.2 Controller

The SV 258 PRO monitoring station is equipped with the SD 270A PRO (or previous modification SD 270 PRO without the TEST button and corresponded LED) controller that integrates and controls all system modules and is responsible for the powering of all elements and communication between the following elements of the monitoring station:

- measuring instrument,
- mobile modem
and optionally
- light and sound alarm etc.



Very important task of the controller is power distribution - it provides appropriate DC power to every element of the system (managing external power sources such as the SB 270 power supply or an optional solar panel or an external battery).

Another key task of the controller is the integration of the entire system – examining the communication, state and condition of every module of the system and the immediate indication of all problems on the control panel by means of several LEDs or remotely using the mobile Internet connection.

The controller also analyses the temperature condition inside the monitoring station case. If the internal temperature is higher than +50°C, the controller will switch off internal battery charging. If the temperature further increases over +65°C, the controller will switch off the monitoring station. The station will be also switched off if the internal temperature falls below -30°C.

The TEST key in the SD 270A PRO controller allows you to reset the controller settings. To do this, press and hold the TEST key for more than 20 seconds until the corresponding LED lights up. Release the key and the controller will be reset.

The mini-USB connector on the front panel of the controller is intended for updating the controller firmware.



Note: The mini-USB connector on the controller panel doesn't provide any measurement or setup data exchange with the PC. Such data exchange is carried out via the USB Device interface of SVAN 958 (**USB** socket).



Note: Communication of the controller or SVAN 958 with a PC requires installation of the USB drivers on your PC. USB drivers for Svantek devices are available on <http://svantek.com/support-drivers-software.html>



Note: Make sure SvanPC++ is Off before starting the update! If not, please Exit it before starting any upgrading.

To upgrade the SD 270 PRO controller firmware, go through the next steps:

1. If you upgrade the firmware without removing the controller switch off SVAN 958 and wait until all LEDs are off.
2. Connect the controller to the PC with the SC 56 cable.
3. Run the "loadfile.bat" file on the connected PC. This operation opens a window which displays the state of downloading the program. After successful loading the "File loaded" will be displayed.
4. Press any key on the PC to finish firmware download.
5. Disconnect the SC 56 cable. The **BAT 1** LED goes out.

To upgrade the SD 270A PRO controller firmware, go through the next steps:

1. If you upgrade the firmware without removing the controller switch off SVAN 958 and wait until all LEDs are off.
2. Connect the controller to the PC with the SC 56 cable. The **TEST** LED starts blinking red 1 per second.
3. Run the "loadfile.bat" file on the connected PC. This operation opens a window which displays the state of downloading the program. While downloading the **TEST** LED starts blinking faster. After successful loading the "File loaded" is displayed and **TEST** LED starts blinking red 1 per 3 seconds.
4. Press any key on the PC to finish firmware download.
5. Disconnect the SC 56 cable. The **TEST** LED goes out.



Note: If after successful firmware loading you run the “loadfile.bat” file again, the firmware will not start downloading and the byte counter will not be changing. If you still would like to repeat firmware upgrading, disconnect the SC 56 cable and repeat steps from 2 to 5.



Note: In the case of any problems with upgrade, switch off SVAN 958 and wait until all LEDs are off, then extract the controller from the case and repeat steps from 2 to 5.

2.1.3 Sound and Vibration Analyser

SVAN 958 is a class 1 Four-channel Sound & Vibration level meter as well as a real time 1/1 or 1/3 octave or FFT analyser and is a core of the SV 258 PRO system. Its role is to make measurements and save results in files, as well as to control data transfer via the mobile modem to the *SvanNET* webserver or directly to a PC. Measurement results can be analysed with the use of the *SvanPC++* software.

Main important features of SVAN 958 as a part of the SV 258 PRO system:

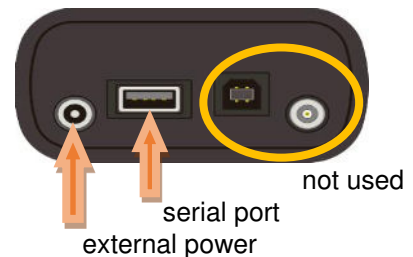
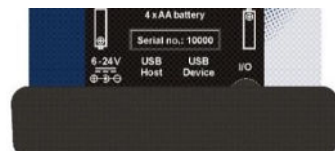
- Four-channel, 20 kHz real-time, simultaneous sound and vibration measurements: Human Vibration measurements meeting ISO 8041-1:2017 including VDV and MTVV and Sound level meter class 1, IEC 61672:2002.
- Analyser options: FFT analysis up to 1600 lines in 20 kHz band; 1/1 and 1/3 octave real-time analysis.
- Advanced time history logging, time-domain signal recording for each channel provides complete information about the measured signal.
- Advanced trigger and alarm functions.

SVAN 958 has two input sockets: 4-pins Lemo compatible socket type ENB.0B.304 for **Channels 1–3** and TNC for **Channel 4**. All sockets ensure IEPE power supply for the accelerometers or microphone preamplifiers.

SVAN 958, when it works with the monitoring station, is powered from an external power supply via the **6-24V** socket.

Data transfer to the modem is via a **USB Host** socket, the serial interface.

Other instrument sockets are not used in the SV 258 PRO system.



Note: The instrument lies backwards in the station, therefore the location of the connectors is mirrored in relation to the picture.



Note: As a part of the SV 258 PRO station SVAN 958 is powered from the external source and doesn't use its internal batteries. Internal instrument's batteries must be removed for correct system operation and safety reasons!



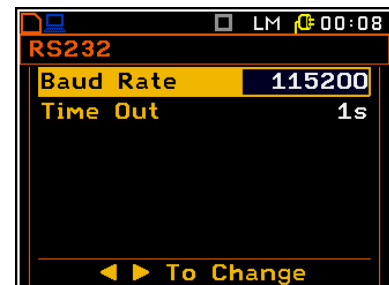
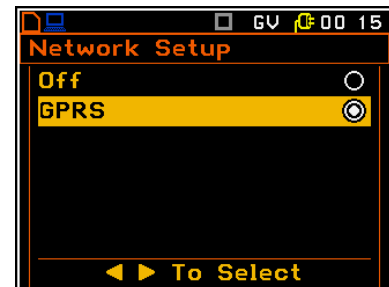
Note: The station is delivered without internal batteries inside the instrument. But if you use SVAN 958 as a hand-held instrument, don't forget to remove batteries from the instrument every time you put it back into the station slot.

To insert or extract batteries, switch off the instrument, remove the bottom rubber cover, unscrew out the blanking plate and slide the batteries out. Screw the blanking plate and fix the rubber bottom cover back on.



There are few important settings, which should be assured in the instrument when it is a part of the monitoring station:

1. **Network Setup** should be set to **GPRS** to enable data transmission via the mobile modem (*path: <Menu> / Setup / Wireless Com. / Network Setup*).
2. **RS232** should be switched on in the **USB Host Setup** window (*path: <Menu> / Setup / USB Host Setup*).
3. The RS232 should have next parameters (*path: <Menu> / Setup / RS232 Setup*):
 - **Baud Rate: 115200**
 - **Time Out: 1s.**

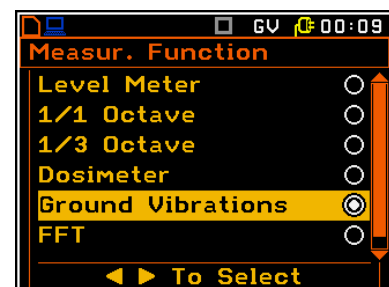


Note: Without these settings, the instrument will not communicate with the station modem!

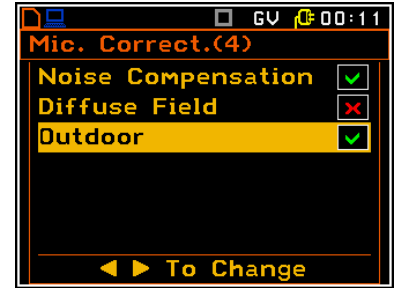
You may adjust the input parameters of four station channels in accordance with measurement purposes and used transducers (see SVAN 958 User Manual).

If you are going to use the station for measurement of the vibration imission in accordance with DIN 45669-2 and optionally to monitor noise, you must assure additional settings:

1. The measurement function should be set to **Ground Vibrations** (*path: <Menu> / Function / Measurement Function*), which automatically defines next channel's assignment:
 - Channel 1: Vibration
 - Channel 2: Vibration
 - Channel 3: Vibration
 - Channel 4: Sound



2. If you are going to use the optional **SV 208A** Sound measurements set, you should set the **Outdoor** filter as **Microphone Correction** for the fourth channel (*path: <Menu> / Input / Channels Setup / General Setup (P1) / Channel 4 / Microphone Correction*). This filter is dedicated for the permanent outdoor monitoring application. Frequency characteristics of the filter is given in Appendix C to the SVAN 958 User Manual.



Note: See also *SVAN 958 User Manual* for measurement and instrument settings.

All measurement, hardware and data transmission settings can be set up via the SVAN 958 user interface, or remotely via the *SvanNET* webserver or the *SvanPC++* program.

2.1.4 Mobile modem

The SP 270 mobile modem provides fast data transfer over the Internet to a PC with standard Internet connectivity. The station uses a 3G modem type “Gemalto® EHS6T Terminal” or a 4G modem type “Cinterion® PLS62T-W Gateway”.

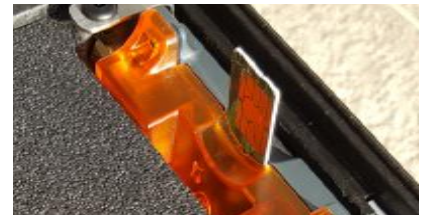
Both modems use mini-SIM cards 25mm x 15mm with Internet Access. The SIM slot accepts 1.8V and 3V SIM cards in accordance with GSM 11.12 Phase 2.



Note: See also “Gemalto® EHS6T Terminal” or “Cinterion® PLS62T-W Gateway” user manual.

The SIM-card should be inserted in the slot with the circuit side facing left by pushing it until it snaps hold.

The SIM-card can be removed from the card slot by using a pen or other flat object. Press on the card until it snaps out. Use tweezers to remove the SIM-card from the slot.



If settings of SVAN 958 in the “Wireless Transfer” menu are correct, then once you insert a SIM card in the modem slot the remote communication settings of the modem are automatically adjusted to connect to the SvanNET server. In some cases, APN should be provided.



Note: Be sure that the PIN of the SIM card is off!

If settings of SVAN 958 in the “Wireless Transfer” menu are correct, then once you insert a SIM card in the modem slot, the remote communication settings of the modem are automatically adjusted to connect the station to the SvanNET web server. In some cases, APN should be provided.

The modem has two LEDs – green and orange. The green LED is on when the modem power is on.

The orange LED blinks once per second if one of the below conditions is met:

- No SIM card,
- No signal,
- No antenna.

In another cases, the LED short blinks orange once per 4 seconds, and the modem is logged to the mobile network.

2.1.5 Building / Ground Vibration Accelerometer

The **SV 84** low-noise, hermetically sealed triaxial piezoelectric accelerometer is designed to monitor building and ground vibrations with the SVAN 958 instrument.

The hermetically sealed glass connector protects SV 84 from harmful dust and moisture enabling the outdoor use without additional enclosures.

The signal ground is insulated from the mounting surface and outer case to prevent ground loops.

SV 84 is a part of the SV 207B set that includes also the metal mounting adapter.



Note: See SA 84 Technical Specification on www.svantek.com.



Note: Correct connection of the accelerometer is not signalled by the controller, therefore it is recommended to perform test measurements each time the station is turned on.

2.1.6 External Power Supply with AC/DC converter

The SB 270 external power supply is a waterproof Single Output Switching Power Supply which is characterised by:

- Universal AC input / Full range (90 ~ 264VAC)
- Protections: Short circuit / Over load / Over voltage
- Fully encapsulated (IP 65)
- Fully isolated plastic case



2.2 OPTIONAL ACCESSORIES FOR SV 258 PRO

2.2.1 Sound Measurement Set

The **SV 208A** sound measurements set includes: Microtech Gefell Prepolarised condenser microphone (**MK 255**), microphone preamplifier (**SV 12L**), outdoor microphone kit (**SA 277**), desiccator (**SA 270D**), preamplifier cable (**SC 277**) and carrying case (**SA 250**). The outdoor microphone kit protects the preamplifier and microphone from weather conditions. The use of the outdoor kit requires an extension cable between the monitoring station and the microphone preamplifier (**SC 258**). SA 277 is made of lightweight materials and is easy to install on a tripod.

The outdoor microphone kit has $\frac{3}{4}$ " screw on its bottom which enables using of standard tripods or other user specific mountings. Technical data such as direct and frequency characteristics associated with the microphone are specified in the SVAN 958 user manual.

Optionally you may use desiccator - Silica gel. Desiccator absorbs moisture normally contained in the air.



Note: Desiccator should be regenerated after some period of use, when it changes colour to light grey, by drying it for 3 hours in a temperature of 150°C. Desiccator should be inspected at least every 2 weeks, and more often when used in conditions of high air humidity.



Note: See Appendix B to learn how to assemble and disassemble the outdoor microphone kit.



Note: After assembling the SA 208A or after calibration check that the windscreen foam is properly installed. It should be shifted close to the anti-bird spikes. Otherwise, the SA 208A free-field characteristics will be different from declared ones.

For absolute certainty, push the windscreen up to the stop.



Note: Before installing the station at the measurement site, make sure that the protective caps on the four antibird spikes are removed.

It is recommended to use the protective caps during transportation, storage and other operations with the instrument like, laboratory calibration, etc. to avoid personal injury.



Note: Correct connection of the microphone is not signalled by the controller therefore it is recommended to perform a test measurement each time the station is turned on.



2.2.2 Vibration Calibrator

The **SV 111** vibration calibrator is designed for in-situ checks according to ISO 8041-1:2017. In-situ checks are intended for application in the field prior to and following a measurement or series of measurements.

The SV 111 is suitable for calibration checks of various of vibration transducer types at different frequencies from 16 Hz up to 640 Hz. Depending on the selected frequency you may choose the level of the calibration from 1 m/s² to 10 m/s².

SV 111 has robust casing and built-in rechargeable battery.



To calibrate or check the measurement system with the SV 84 accelerometer the special SA 154 calibration adapter is needed.

This adapter is optional, not included in the monitoring station standard set.



2.2.3 Sound Calibrator

The **SV 36** 1 Class Sound calibrator produces sound pressure of declared levels - 94 or 114 dB at a frequency of 1 kHz.

This calibrator is equipped with the autorun function. It starts generation of the declared sound pressure automatically after insertion of the microphone into the calibrator hole.



2.2.4 External rechargeable battery

SB 272 is an external source of DC power for the monitoring station. It includes a Lead-Acid rechargeable battery (33 Ah, 12 V) and is dedicated for outdoor use because of its waterproof case. The battery capacity enables up to three times longer operating time of the monitoring station.

The SB 272 set includes the SB 273 indoor charger and a cable for connection between SB 272 and the monitoring station.



SB 272 has the same connector for charging and for power supply and therefore cannot be used as a power supply for the monitoring station and at the same time be charged (as the internal station battery when it is charged from the solar panel or external power supply).



Note: SB 272 cannot be charged by the monitoring station SB 270 power supply!



Note: SB 272 is not restricted for air, surface and water transport. Classified as non-hazardous material (IATA/ICAO Special Provision A67, DOT-CFR Title 49 parts 171-189, IMDG amendment 27).



Note: It is necessary to charge SB 272 after any total discharge, otherwise the battery may lose its capacity.



Note: SB 272 should not be stored for a long time with a discharged battery. Storing SB 272 with a discharged battery may damage it.



Note: If SB 272 is planned to be stored for a long period of time, it is recommended to charge its battery to 100% capacity. The battery should be charged at least once per 6 months.



Note: If the storage period is longer than one year, a discharge/charge cycle must be performed. To do this, completely discharge the battery and then charge it to 100% capacity.

2.2.5 Solar Panel

The **SB 271** solar panel (40 W, 17.5 V DC) extends the working time of the monitoring station. The size and weight of the panel enables easy transportation in the dedicated carrying bag.

The SB 271 solar panel does not require additional batteries or external controllers.

The mounting system enables mounting of the SB 271 solar panel above the monitoring case which provides a natural shade that protects the station from overheating.

SB 271 is equipped with a military standard connector cable for direct connection to the monitoring station.



2.2.6 Alarm Lamp

The **SP 272** alarm lamp is of type WERMA, LED/Buzzer (12 V DC).

The alarm lamp is connecting to the **EXTERNAL INTERFACE** connector.



In this lamp, the buzzer is disabled by default. To enable it:

1. open the case by pushing the black button and turning the plafond and
2. shift the switch to the left.



3 OPERATING THE STATION

3.1 PREPARING THE MODEM

It is strongly advised to prepare the modem before going on site.

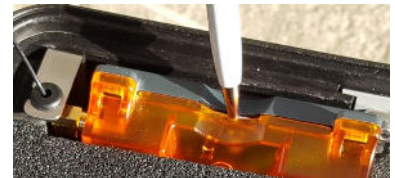
1. Start by opening the SV 258 PRO station and locating the mobile modem on the right-hand side of the case.



2. Insert a mini-SIM card into the slot of the modem. The SIM card PIN protection must be disabled.



3. A click sound indicates that the SIM-card is in the right position. If necessary, use a tool (e.g., a pen) to push the SIM card fully in.



4. Press **<Alt>+<Start>** on SVAN 958 to turn on the system.

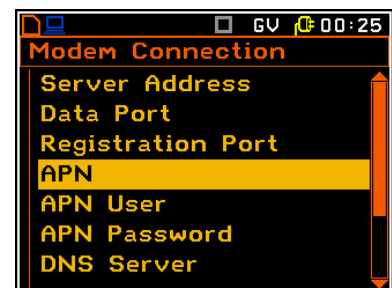
The station is programmed to automatically establish a mobile connection with the *SvanNET* webserver. It takes up to 5 minutes to connect.



The most important parameter of the connection is the **APN** (Access Point Name).

5. Check the APN setting in SVAN 958.

The default APN setting is "**internet**". It's possible that your Internet provider is using a different APN. In this case the APN must be entered manually, either using the *SvanPC++* software or the SVAN 958 user interface (*path: <Menu> / Setup / Wireless Com. / Modem Connection / APN*).





Note: The station is supplied with SVAN 958 configured for connection with SvanNET. If for some reasons you have changed factory settings, you always may restore them with the use of Factory Settings option.



Note: If above steps don't result in connection with SvanNET or you wish to connect to the other server, you have to configure remote communication parameters in your SVAN 958 according to the SVAN 958 user manual. In the case of further problems consult your local distributor or SVANTEK.

3.2 ASSEMBLING THE STATION

1. The system consists of two carrying cases. Before the use check the serial numbers on labels located on the front side of both cases and ensure they are a matching set.



2. Connect the SC 278 cable to the SV 84 accelerometer.



3. Install the accelerometer on the mounting adapter and screw it with the Allen key (key is included in the accessories set).



4. Remove the protection cap from the input socket (**INPUT 1-3**) on the case by turning it counter-clockwise and fix it on the special holder.



5. To connect the cable, start by lining up the key on the plug and the socket, then lock the connector by turning the ring clockwise (only the ring close to the socket will rotate).

To disconnect cables, push the connector towards the station and turn it counter-clockwise. New connectors require more force so using a closed hand is more effective than using just fingers.



6. If you wish to power the station, connect the power supply cable to the **DC SUPPLY** socket in the same way.
7. To use Alarm lamp, connect the SP 272 connector to the **EXTERNAL INTERFACE** socket on the SV 258 PRO case.
8. Press **<Alt>+<Start>** on the instrument keyboard to turn on the system.
9. The station now is ready for use.



3.3 POWERING

The SV 258 PRO monitoring station can be powered from:

- internal rechargeable battery,
- mains power supply (SB 270);

and optionally from:

- external rechargeable battery (SB 272),
- solar panel (SB 271).

When the mains power supply is connected, it starts powering the station and charging the internal battery in parallel (as a voltage source).

When the external rechargeable battery is connected to the station the station controller switches the powering from the internal battery to the external one. As soon as the external battery is discharged the controller switches powering back to the internal battery.

When the solar panel is connected to the station it starts loading the internal battery (as a current source). And all the time the solar panel charges the internal battery, the station continues to be powered from the internal battery.

The status of powering is indicated at the controller's panel by a combination of **DC**, **CHARGING**, **BAT 1** or **BAT 2** LEDs (see Table below).



Note: It is recommended to charge SV 258 PRO and SB 272 before going on site.



Note: The monitoring station and the external battery have their own chargers, which are incompatible: SB 270 is a waterproof power supply for SV 258 PRO, whereas SB 273 is an indoor charger for SB 272.



Note: SVAN 958 is powered from the external source and doesn't use its internal batteries. Internal instrument's batteries must be removed for correct system operation and safety reasons!

3.4 CONTROLLER INTERFACE

The controller interface consists of several LEDs, which indicate the state of the station elements or their connection with the controller:

- **DC** external power supply connection state (AC/DC converter),
- **CHARGING** charging state of the internal battery,
- **BAT 1** internal battery state,
- **BAT 2** additional external battery state,
- **SVAN** SVAN 958 connection state,
- **3G** mobile modem connection state,
- **EXT I/O** alarm status.

Colour of LEDs can be red, orange or green.

Colour of the **SVAN**, **3G** and **EXT. I/O** LEDs reflect the communication state with the corresponding unit.

Flashing green of these LEDs means that the unit is turned on and there is data transmission between the unit and the controller.

The **SVAN** LED is red when there is no connection with the instrument (for example, when the instrument is switched off), blinks orange when initiating a connection to the controller (also during turning on) or turning off the power.

The **3G** LED blinks orange when initiating a connection to the controller (also during turning on) or turning off the power.

If the alarm lamp is connected, the **EXT I/O** LED lights red when the alarm is triggered.

Colour of the **DC**, **CHARGING**, **BAT 1** or **BAT 2** LEDs depend on the state of the power supply and charging of the internal battery.

The table below shows combinations of LED colours in the specific power supply conditions.

Power from	Internal battery	Power supply	External battery	Solar panel
DC	off	green	off	off
CHARGING	off	<ul style="list-style-type: none"> • red when charging • green when charged 	off	<ul style="list-style-type: none"> • red when charging • green when charged
BAT 1	<ul style="list-style-type: none"> • green if charged > 50% • orange if charged 20-50% • red if charged <20% • blinking red if charged <8% • off if 0% charged or disconnected 	<ul style="list-style-type: none"> • when charging, colour is changed: red-orange-green • green when charged 	off	<ul style="list-style-type: none"> • when charging, colour is changed: red-orange-green • green when charged

BAT 2	off	off	<ul style="list-style-type: none"> • green if charged > 50% • orange if charged 20-50% • red if charged <20% • blinking red if charged <8% • off if 0% charged or disconnected 	off
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3.5 STATION MODES

3.5.1 Turning on

The SV 258 PRO monitoring station comes to the customer with the SVAN 958 instrument installed in the station slot and with all cables connected.

When the remote communication is established, the station is fully assembled, and SVAN 958 is set correctly (see Chapter [2.1.3](#)), turn on the SVAN 979 instrument by pressing simultaneously **<Alt>** and **<Start>** keys on the instrument keyboard. The controller will turn on automatically and switch on the modem and weather station (if connected).

System integration is checked directly after turning on the controller. This procedure includes checking the connections with the instrument and mobile modem (optionally also the weather station). Additionally, system power, internal temperature of the station and the battery state are checked.

During the test procedure, all LEDs show the current status and errors are indicated. If the turning on is performing after the system reset, all LEDs light up sequentially orange in the sequence from **DC** to **BAT2** and from **SVAN** to **EXT I/O**.

Successful start of the system is indicated by the **SVAN** LED - green or blinking green.



Note: Green or blinking green **SVAN** LED means that SV 277 PRO is ready to work.

If for some reasons the power cable was disconnected from SVAN 958 or the internal battery was discharged, after reinstalling power, SVAN 958 will turn on automatically starting the whole station.



Note: The station is turned on:

- after turning the instrument on from the keypad,
- after connecting power cable to the instrument,
- after connecting the external power if the station was turned off due to the internal battery being exhausted.

3.5.2 Turning off

The SV 258 PRO monitoring station is turned off by pressing simultaneously **<Alt>** and **<Start>** keys on the SVAN 958 instrument keyboard.

The station is also turns off automatically when the internal battery is fully discharged.



Note: In the case the controller doesn't communicate with SVAN 958 (for example, if the USB-A communication cable was disconnected from the instrument, or the instrument was removed from the station), the controller will try to reset the instrument until it is done. The **SVAN** LED will blink orange. To turn off the station in this situation, install the instrument in the station and connect all cables (see Chapter [2.1.3](#)), turn the instrument on, wait until the **SVAN** LED is green or blinking green and turn off the instrument from its keyboard.

The station is properly powered down when the **SVAN**, **3G**, **EXT I/O** LEDs and instrument screen go out. **DC**, **CHARGING** and **BAT 1** LEDs can be active – see Chapter [3.5.5](#).

3.5.3 Operating

In the operating mode, the SVAN 958, controller and mobile modem are switched on and communication between all modules is functioning correctly. Main indicator of this state – green **SVAN** LED!

Data transmission is presented by the blinking lights of **SVAN** and **3G** LEDs.

In the operating mode, the following modules are powered continuously: measuring instrument, controller, modem, and outdoor microphone (optionally also the weather station).

When the station case is open, all LED diodes of the controller shine, informing about the station condition. The instrument display is switched on permanently regardless of the instrument's settings.

When the station case is closed, all LED diodes of the controller are off, and the instrument display is also off in order to save energy.

3.5.4 Battery charging

When the instrument is switched off but there is an external power supply, only **DC**, **CHARGING** and **BAT 1** LEDs of the controller will be active if the lid is open. These LEDs indicate:

- external power supply connection - green **DC** LED,
- charging of the internal battery - red **CHARGING** LED. When charging is complete **CHARGING** LED turns green and **BAT1** LED stops changing colours and turns green,
- status of the internal battery charging - sequence of green-orange-red **BAT 1** LED

If case the lid is closed, all LEDs will be off, but charging will continue.

3.5.5 Automatic station reset

If the controller loses contact with the instrument due to suspension of the instrument (and described above situations), the controller will reset the instrument to restore communication by turning off its power in cycles of about 1 min.



Note: *SVAN 958 is powered from the external source and doesn't use its internal batteries. Internal instrument's batteries must be removed for correct system operation and safety reasons!*



Note: *In case the instrument has its internal batteries, the reset will not be possible.*

3.5.6 Bootstrap

The bootstrap allows upgrades of the internal firmware of the controller.

There are two ways to activate "bootstrap mode":

- by removing the controller from the monitoring station and connecting it to the PC through the USB or
- by connecting the controller to the PC via USB while SVAN 979 is off (all LEDs should be turned off).

Activation of bootstrap mode is indicated:

- in the case of SD 270, by the green **BAT 1** LED or
- in the case of SD 270A, by the LED above the **TEST** key.



Note: *USB connection between the controller and the PC can be established only if the USB driver for SVANTEK instruments had been previously installed on this PC. The USB driver can be downloaded from www.svantek.com*

4 OPTIONS OF THE STATION CONTROL

Prior to start operating the station it is necessary to prepare it according to the instructions in Chapter [3.1](#) and [3.2](#), connect the power source if necessary and switch on the SVAN 958 instrument by pressing simultaneously the <Shift> and <Start/Stop> keys.

Basic control operations include:

- Measurements start/stop
- Measurement results view
- System check/calibration
- Files download/upload
- Instrument/measurement configuration
- Firmware upgrade.

Most of these operations can be performed manually using the SVAN 958 control panel. However, SV 258 PRO is dedicated for the outdoor monitoring and the control to the station can be carried out remotely via the mobile network with the use of internal mobile modem.

SVANTEK offers two tools to support remote functionality:

- *SvanNET* web service for monitoring purposes and full station control functions.
- *SvanPC++* software for data post-processing and report generating which after upgrading with the *SvanPC++_RC* optional module can be used for full station control.

SVANTEK offers optional tools that require special licenses:

- Automatic Monitoring Services of *SvanNET* which offers automatic control of many measurement points, data sharing with other *SvanNET* users as well as data preview in the form of a customised website with either public or restricted access. The preview website can be customised with a logo and individual project name. Access to the preview can be either open to the public or protected by a password.
- *SvanPC++_RC* (Remote Communication) module of *SvanPC++* which is dedicated to all types of communication channels of mobile network as well as for WLAN. *SvanPC++* has also advanced capability of remote configuration, control, data retrieving, data processing and reporting. For details, see *SvanPC++* User Manual.
- *SvanPC++_EM* (Environmental Measurements) module of *SvanPC++* which is designed for post-processing of data recorded by monitoring stations. The module offers a powerful calculator and an automated noise event finder for noise source identification. Thanks to its "Projects" functionality, *SvanPC++_EM* allows you to combine and compare data from multiple measurements as well as create and save reports in MS Word™ templates.

4.1 CONTROL VIA THE SVAN 958 CONTROL PANEL

Using the control panel (keypad and display) of the measuring instrument, one can access all available functions and change the value of all available parameters. The parameters are placed in a system of lists and grouped in the hierarchical structure menu shown on the high contrast graphic colour display.

The description of the control panel user interface is presenter in Chapter [6](#).

4.2 REMOTE COMMUNICATION

The SV 258 PRO station is designed to be operated remotely via a mobile connection. The easiest way to establish remote control is to create a user account in the *SvanNET* web service.

Planning and deploying the remote-control system of the station doesn't require any extensive knowledge in the field of telecommunication.

The station modem enables the user a wide spectrum of interfacing capabilities for access to the Internet. It offers the main communication channel, *SvanNET* e-mail functionalities and SMS alarms notifications.

4.2.1 Main communication channel

Main communication channel is a TCP/IP connection (a lossless data exchange protocol) that can be used to exchange commands as specified by Appendix A. *SvanPC++_RC* assures this connection and provides data download, configuration, performance validation and measurement start/stop.

Main communication channel of SV 258 PRO can be established by one of two available methods: TCP/IP Client or TCP/IP Server. SV 258 PRO does not support SSL (Secure Socket Layer) connections.

The **TCP Client** is a mode of main communication channel in which the station is configured to initiate connection to a designated address (**remote host**). The station attempts to establish a TCP/IP connection to a designated address on a designated port (**Data Port**) automatically. Should the connection be established successfully, the station can exchange commands with the remote server. Should the connection attempt fail or is broken by the **remote host**, the station will attempt to reconnect again. To prevent the connections from going *idle* (a state in which the TCP/IP connection seems to be active, but no data can be transferred), the station maintains the connection to the server by sending small packages of data at keep alive period (which by default is one minute). If the transfer is not properly acknowledged by the other party, the connection will be terminated.



Note: *TCP Client* mode is used in the *SvanNET* web service. *SvanPC++_RC* supports all modes of TCP/IP connection.

The station uses the **TCP Client** mode to connect to *SvanNET* (this is the default setting of the station) or another user defined server. The user also connects to *SvanNET* via web browser or *SvanPC++_RC*, and the service creates a "bridge" between the station and the user. In this case for the mobile communication, there are no restrictions on SIM card tariff (no public IP address is required) and simple internet access is enough. The essence of *SvanNET* is to simplify the procedures and requirements necessary for the connection.

TCP Server is a mode in which the mobile modem is configured to act as a server for incoming connections. The modem is waiting for the first connection to be established on a designated port (called **Data Port**; default 8001). Such connection can come from any application - an initiator of the TCP connection (such as *SvanPC++*) called **remote peer**. This mode is recommended as it gives the initiative to the application. This mode requires the SIM with a **public address** (also called **public IP**).

The **TCP Server** mode uses a so-called **Registration**. This is a method of translation of a **dynamic address** to a form of a static credentials. It is essential for effective use of a SIM card with a **dynamic IP**. The dynamic IP means that the IP address is changed each time the modem establishes connection to the Internet. The Registration feature allows to use the current internet address by an external application for the connection.

There are two Registration methods supported by SV 258 PRO:

1. DynDns
2. Address Server

The **DynDns** is a service that allows to translate a static name to the internet address. The special controlling application uses this name to identify SV 258 PRO in the Internet as an internet address. The properly configured station provides means to validate its internet address to be recognized in the Internet. The static name provided by DynDns service is translated by the DNS protocol to a given internet address to which an application can connect to.



Note: *TCP Client mode is used in the SvanNET web service. SvanPC++_RC supports all modes of TCP/IP connection.*

The **Address Server** is the Svantek own initiative of providing the instrument's current internet address. In this mode, SV 258 PRO provides its current internet address to Svantek server. *SvanPC++* is getting said address to be able to connect to it. This mode doesn't require any payments for the account and obtaining any credentials as it comes preconfigured to the user, but it requires access to **www.svantek.com** domain from the Mobile operator's network.



Note: *To use this method contact your local SVANTEK distributor.*

4.2.2 SMS / E-mail alarming

SMS/E-mail alarming functionality allows SV 258 PRO to inform the user about exceeded thresholds by SMS and/or E-mail notification. SV 258 PRO can send an SMS to a defined number(s) and/or an E-mail to a defined address(s) with alarm, including the current value of the monitored result against the threshold level.

The E-mail alarming requires the credentials of the e-mail server to be used for it, including the SMPT server name, the port number, sender name, login and password. The content of the message is created automatically, and the user can add his own information to it.



Note: *SvanNET provides also an e-mail service. SVAN 958 is factory configured to enable e-mail sending via SvanNET. The user can reconfigure it through SvanPC++ only (see SvanPC++ User Manual).*



Note: *SvanNET e-mail service uses SSL connection.*

It should be noted that SMS alarming does not require the modem to establish internet connection and, as such, the SIM card does not require any data transfer plan as sending SMS messages is done entirely over the mobile network. E-mails still require access to the internet.

4.2.3 SMS command exchange

SMS command exchange allows any command from the *Appendix A. Remote Control* to SVAN 958 User Manual to be exchanged via SMS. By sending a command as specified by the said document, SV 258 PRO can provide a response. This feature is particularly useful when retrieving the current state of the station.

Like SMS alarming, this feature does not require an active internet connection.

The functionality is useful tool in some situations. In particular, to send "Reset" or "#7,RM;" (reset communication) command when there is a loss of remote communication.

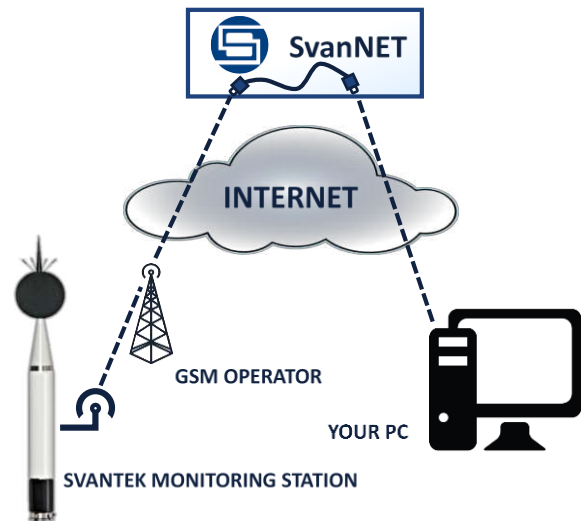
The functionality does not require any additional configuration as is always active when modem is on.

4.3 SVANNET WEB SERVICE

SvanNET is an Internet service that simplifies the remote connection with Svantek monitoring stations using all kinds of computers and mobile devices with Internet access.

SvanNET allows usage of all type of SIM cards with the station modem regardless of having a public or private IP address.

The connection over the *SvanNET* allows users to watch real time measurement results, to control monitoring stations and measurements, to download files (manually or automatically), to configure monitoring stations using any available Internet browser.



Note: Establishing a mobile connection requires the use of a SIM card without PIN code protection and with activated Internet access. Installation of the SIM card is described in Chapter 3.1.

4.4 REMOTE COMMUNICATION MODULE OF SVANPC++

SvanPC++ is more extended software than *SvanNET* regarding data view and data process functionality. It can utilize all above-described communication channels, also via *SvanNET*. For this purpose, *SvanPC++* should be completed with special **Remote Communication** module, which usually is delivered as an option to *SvanPC++*.

SvanPC++ and Remote Communication module is described in detail in the *SvanPC++* User Manual.

5 CONNECTING TO SVANNET

To use *SvanNET*, you should have the *SvanNET* account with assigned stations.



Note: Ask your local *SVANTEK* distributor to create the *SvanNET* account for you and assign your new station to your *SvanNET* account.



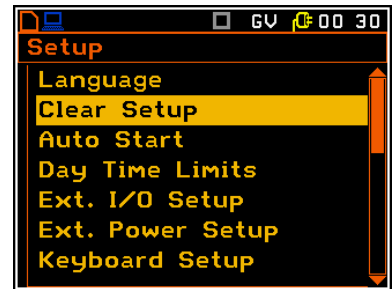
Note: The factory configuration of *SVAN 977* enables automatic connection with *SvanNET* after turning the instrument on.

If the factory settings were changed, to set connection with *SvanNET* please follow next steps:

1. Press the **<Alt>+<Start>** keys on the instrument keyboard to turn on the system.



2. Reset all settings in *SVAN 958* using **Clear Setup** option (path: **<Menu> / Setup / Clear Setup**)



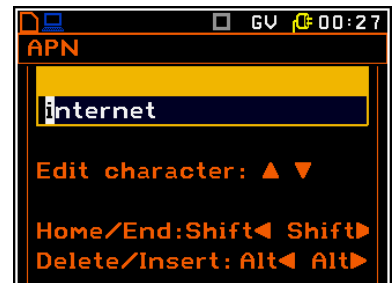
Note: Newly purchased stations have factory settings.

3. Make **GPRS** active (path: **<Menu> / Setup / Wireless Com. / Network Setup / GPRS: On**).



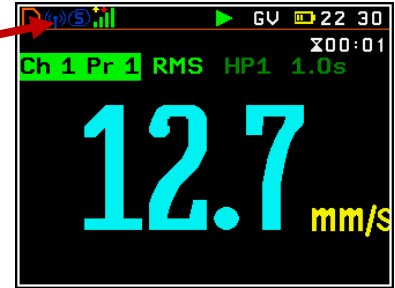
4. Check the Access Point Name (APN).

The default setting for the APN is "**internet**". It is possible that your Internet provider uses different APN. In this case, the APN must be entered manually (path: **<Menu> / Setup / Wireless Com. / Modem Connection / APN**).



5. Successful connection to *SvanNET* is indicated by the “S” icon on the SVAN 958 display.

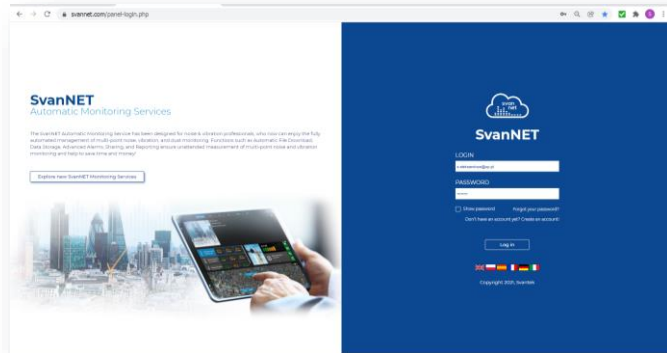
The “S” icon means that connection with *SvanNET* is established. Bars and arrows inform about signal quality and data transmission – in and out.



6. To access *SvanNET*, log in to your account at:
<https://www.svannet.com/panel-login.php>

Before logging, select your language.

Once logged in you can use the web interface to work remotely with the monitoring station.



6 SVANNET USER INTERFACE

SvanNET includes the standard function - *Remote Communication Services* available for all the *SvanNET* users and the optional extension - *Automatic Monitoring Services* offered via a license.

Remote Communication Services maintain remote connection with the monitoring devices and service includes status alarms (e.g., battery, memory), remote access to device settings and measurement files stored in the device and preview of the current results and recent time-history graph.

Automatic Monitoring Services offers automatic control of many measurement points, data sharing with other *SvanNET* users as well as data preview in the form of a customised website with either public or restricted access. The preview website can be customised with a logo and individual project name. Access to the preview can be either open to the public or protected by a password.

You can switch both services using icons on the Main panel:



– *Remote Communication Services (Station list)*.



– *Automatic Monitoring Services (Project list)*

If you have the extended *SvanNET* package, you can use both tools. If you have standard *SvanNET* package, only Station list tool will be available.



Note: To get more information about all functions of *SvanNET* follow *SvanNET* User Manual.

6.1 REMOTE COMMUNICATION SERVICES – STATION LIST

Station list displays all stations assigned to your account – turned on and off. When you click the station, it becomes active and the tools at the right panel will be dedicated to this particular station.

The screenshot displays the 'Station list - S/N 11740' interface. At the top, there's a 'Station information' section for '307A NA TARASIE W SVANTKU' with a 'Designation: SVAN 958 S/N 11740'. Below this is a list of stations, with 'SVAN 958 S/N 11740' highlighted. To the right, a vertical menu contains buttons for 'WEB INTERFACE', 'STATUS', 'CERTIFICATES', 'STATUS LOG', 'CONNECTION LOG', and 'DATA TRANSFER LOG'. The bottom section features six informational cards: 'Station in project' (Project: Demo project 2), 'Alerts' (2022-10-21 07:49:01, No alerts), 'Station status' (status - online), 'Battery state' (2022-07-19 13:01:17, 31 %, not charging), 'Power source' (2022-10-21 07:49:01, Mains), and 'Memory' (2022-07-19 13:01:17, 88 % (14 GB free)).

The station bar except station name with serial number includes five icons that indicate station state. When a station is disconnected from *SvanNET* all icons are of grey colour.

If you click the station name, station information will be displayed. If you click the icon, this icon status information will be displayed:



Project status: this icon appears when this station is involved in the project. When you click this icon, the project name and link to it will be displayed.



Alert status: blue - everything is OK, red – unregular event is happening.



Station connection status: green – online; grey – offline; yellow - the station doesn't respond to the command for a long time.



Battery state. When you click this icon, the information about battery state will be displayed.



External power source status: blue – the instrument is powered by the external source, grey - there is no external power.



Memory status. When you click this icon, the information about available memory will be displayed.

Icons in the Main panel tool allows you to:



display alarms for all stations



manage user account



activate licences



contact Svantek Support team

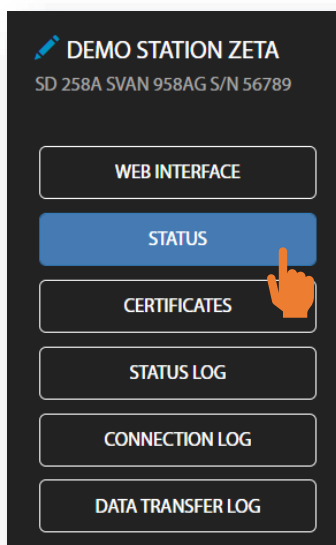


change the colour scheme of *SvanNET* from “dark” to “light”



logout from *SvanNET*.

The Tool panel provides some functions for station control. To switch the function, point cursor on the appropriate button (it will change its colour to blue) and click it.



The **WEB INTERFACE** button switches you to the Live data view (see Chapter [6.2](#)) in which you can view measurement results and use additional tools to configure station parameters, download data files and start/stop measurements. This button is available for the stations connected to SvanNET.

The **STATUS** button switches you to the Station status view (see Chapter [6.1.1](#)) in which you can check the station status and configure status alarms.

The **CERTIFICATES** button activates the dialog box which shows available certificates for this instrument and allows you to add new certificate (see Chapter [6.1.2](#)).

The **STATUS LOG** button switches you to the Status log view (see Chapter [6.1.3](#)) in which you can check the power source (type and charge level), memory free space and mobile signal quality.

The **CONNECTION LOG** button switches you to the Connection log view (see Chapter [6.1.3](#)) in which you can check the history of station connections.

The **DATA TRANSFER LOG** button switches you to the Data transfer log view (see Chapter [6.1.3](#)) in which you can check the history of data transfers (uploads).

Clicking  you can set the new station name instead of the default.

6.1.1 STATUS view

In the STATUS view, you can:

- check the station status (firmware version, battery charging, memory, connection etc.),
- configure alarms for the respective states that *SvanNET* will generate and send to the defined recipients in the form of e-mail. (**STATIONS ALARMS** button),
- update the instrument's status (**UPDATE STATUS** button),



Note: In this section you can configure alarms generated by *SvanNET* based on data received from all stations belonged to your account. Some stations may also generate their own alarms which can be configured via *WEB INTERFACE* in the *CONFIGURATION* section – see Chapter [6.2.3](#).

The screenshot shows the 'Station - SVAN 958 S/N 11740' interface. The 'STATION ALARMS' button is highlighted with an orange box. An orange arrow points from this button to a pop-up dialog box titled '+ADD ALARM'. The dialog box contains a search bar, filter buttons for 'All', 'Active', and 'Inactive', and 'APPLY' and 'CLOSE' buttons.

After clicking **STATION ALARMS**, click **+ADD ALARM** in the pop-up box and the new **Alarm(1)** with **CONDITIONS**, **ACTIONS** and **MEASUREMENT POINTS** settings will appear. Alarms are based on Conditions and relate to Actions, that are default e-mails to the specified recipients, and refer to selected Measurement points. To configure Alarm:

1. click the **Status** button and in the **EDIT CONDITIONS** configuration box:
 - a. select **Status source**: **Mains**, **External voltage**, **Battery charge**, **Storage memory**, **System check** etc.,
 - b. click the **Trigger value** selector and choose the required value of the selected **Status source**.

The screenshots show the following steps:

- Step 1:** The main alarm configuration screen for 'Alarm (1)'. The 'CONDITIONS' section has a 'Status' button highlighted with a red box and the number '1'. An arrow points from this box to the 'EDIT CONDITION' dialog.
- Step 2:** The 'EDIT CONDITION' dialog. The 'Status source' dropdown is set to 'Mains' and is highlighted with a red box and the letter 'a'. An arrow points to the next dialog.
- Step 3:** The 'EDIT CONDITION' dialog. The 'Trigger value' dropdown is set to 'Off' and is highlighted with a red box and the letter 'b'. An arrow points to the next dialog.
- Step 4:** The 'EDIT E-MAIL RECIPIENTS' dialog. The 'E-mail recipients' field contains 'user1@svantek.com.pl; user2@svantek.com.pl'. An arrow points from the 'E-mail' button in the main screen to this dialog.
- Step 5:** The 'ASSIGN STATIONS' dialog. A list of stations is shown with toggle switches. The 'SD 258A SVAN 958A S/N 45678' station is selected (toggle is on). An arrow points from the 'Assign' button in the main screen to this dialog.

Finally, a screenshot shows the completed configuration in the main interface:

- CONDITIONS:** Status (Mains is OFF)
- ACTIONS:** E-mail (with the email addresses)
- MEASUREMENT POINTS:** Assign (with the selected station)

2. Click **OK** and new condition will be displayed in the **CONDITIONS** area.
3. Click the **E-mail** button to enter/edit e-mail recipients.
4. Click the **Assign** button to refer alarm to the station(s).

5. Made selections are displayed in the **ACTIONS** and **MEASUREMENT POINTS** areas.

The SvanNET alarms have next meanings:

- **Mains**
 - Trigger Value: Off – alarm is generated when the system detects loss of power supply
 - Trigger Value: On – alarm is generated when the system detects appearance of power supply
- **External voltage**
 - Trigger Value: xx.xx V – alarm is generated when the system detects an external power drop below the selected value. In this case, external power means power supply and all various battery packs
- **Battery charge**
 - Trigger Value: xx % - alarm is generated when the system detects a decrease in the percentage of battery charge below the selected threshold.
- **Storage memory**
 - Trigger Value: xx MB/GB - alarm is generated when the system detects a decrease in the free storage memory below the selected threshold.
- **System check (if applicable)**
 - Alarm is generated when the system detects failure in execution of the system check procedure (not live check).
- **Measurement stopped**
 - Alarm is generated when the system detects lack of measurement. Applies only to stopped measurements - states such as start delay, waiting for synchronization and pause are treated as a running measurement.
 - Instrument action: Start measurement.
- **Storage error**
 - Alarm is generated when the system detects an SD-card error. The check assumes that a measurement is in progress and data are recorded; the writing of the logger file is checked by changing of the free space on the card (which means that the device is writing data).
 - Instrument action: Restart measurement.
- **Instrument clock is incorrect**
 - Trigger value: xx seconds / xx minutes – alarm is generated if the RTC indication of the device is inconsistent with the current system time (based on owner's time zone) by \pm of the selected value.
 - Instrument action: Set instrument clock to server time (based on owner's time zone) – measurement is stopped, instrument clock is set (based on owner's time zone), measurement is resumed.
- **Station is disconnected**
 - Trigger value: xx minutes / xx hours – alarm is generated when the station remains disconnected from *SvanNET* for a time equal to the selected value.

Alarms are reported once after the occurrence of an alarm condition. The occurrence of an alarm condition will generate selected actions (e.g. e-mail) at the moment of changing the status compared to the previous check (i.e. if at 8:15 there is power supply, at 8:30 mains is off, at 8:45 mains is still off, the system will generate an alarm at 8:30 and will be still until mains is on and off again).

6.1.2 CERTIFICATES dialog box

The **CERTIFICATES** button opens the CERTIFICATES dialog box which shows a list of available certificates for this station.

The certificate is attached to each instrument and contains a calibration card and instrument specifications.

You can download the certificate pdf file clicking **Download file**.

Station list - S/N 11740

307A NA TARASIEW SVANTKU
SV 307A S/N 101031

SVAN 958 S/N 11740

979 DEMO STATION
SD 279A PRO SVAN 979 S/N 21040
Last seen: 2022-11-24 18:17:31

SVAN 979 S/N 46188
Last seen: 2017-07-06 15:10:01

CERTIFICATES
SVAN 958 S/N 11740

2007-05-23 Factory calibration

LABORATORY NAME
SVANTEK

PERFORMED BY: RYSZARD LĘDZIAK

[Download file](#)

SVANTEK ISO9001 certified

FACTORY CALIBRATION DATA OF THE SVAN 958 No. 11740

SOUND LEVEL METER

I. CALIBRATION (electrical)

LEVEL METER, Filter: LIN, Input signal =114.0dB, $f_m=1$ kHz

	Range 105dB		Range 130dB	
	Indication (dB)	Error (dB)	Indication (dB)	Error (dB)
Channel 1	113.97	-0.03	114.03	0.03
Channel 2	113.97	-0.03	114.01	0.01
Channel 3	113.97	-0.03	114.03	0.03
Channel 4	113.97	-0.03	114.01	0.01

6.1.3 LOG views

There are three station logs, that register system events, connections and data transfer:

- **Status log** which registers power source type and voltage level, memory free space and GSM signal quality.

In the upper line you can: refresh the log, select the required period of records to be displayed and rewind records.

Status log - SVAN 958 S/N 11740

Date from: [] Date to: [] 30

1 / 985

Date & time	Status	Battery	Power source	4xAA Battery voltage	Source voltage	Free space	GSM signal quality
2023-01-25 10:24:45	OK	Unavailable	Mains	1.3 V	12.0 V	15 MB + 14 MB	Very good
2023-01-25 10:09:45	OK	Unavailable	Mains	1.3 V	12.0 V	15 MB + 14 MB	Very good
2023-01-25 09:54:45	OK	Unavailable	Mains	1.3 V	12.0 V	15 MB + 14 MB	Very good
2023-01-25 09:39:45	OK	Unavailable	Mains	1.2 V	12.0 V	15 MB + 14 MB	Very good
2023-01-25 09:24:40	OK	Unavailable	Mains	1.2 V	12.0 V	15 MB + 14 MB	Very good
2023-01-25 09:09:37	OK	Unavailable	Mains	1.2 V	12.0 V	15 MB + 14 MB	Very good
2023-01-25 08:54:33	OK	Unavailable	Mains	1.2 V	12.0 V	15 MB + 14 MB	Very good
2023-01-25 08:39:32	OK	Unavailable	Mains	1.2 V	12.0 V	15 MB + 14 MB	Very good
2023-01-25 08:24:32	OK	Unavailable	Mains	1.2 V	12.0 V	15 MB + 14 MB	Very good
2023-01-25 08:09:32	OK	Unavailable	Mains	1.2 V	12.0 V	15 MB + 14 MB	Very good
2023-01-25 07:54:23	OK	Unavailable	Mains	1.2 V	12.0 V	15 MB + 14 MB	Very good
2023-01-25 07:39:23	OK	Unavailable	Mains	1.2 V	12.0 V	15 MB + 14 MB	Very good

- **Connection log** which registers history of station connections – result (success or disconnected), IP address, firmware version and reason of the disconnection.

In the upper line you can: refresh the log, select the required period of records to be displayed and rewind records, below is the time-history of connections with the SvanNET and the pie chart shows the total connection time in percentage to the whole working time.

Connection log - SVAN 958 S/N 11740

Date from... Date to...

Date & time	Result	Address
2023-01-24 22:09:21	Success	89.64.63.15
2023-01-24 22:09:06	Disconnected	89.64.89.208
2023-01-24 17:52:50	Success	89.64.63.15
2023-01-24 17:21:38	Disconnected	89.64.63.15
2023-01-24 16:45:02	Success	89.64.63.15
2023-01-24 16:32:39	Disconnected	89.64.63.15
2023-01-24 16:31:50	Success	89.64.63.15
2023-01-24 15:57:35	Disconnected	89.64.63.15

More...

Disconnected 1% Connected 99%

- **Data transfer log** which registers history of data transfers (uploads).

In the upper line you can: refresh the log, select the required period of records to be displayed and select the period for data transfer presentation: Monthly, Weekly, Daily or Hourly.

Data transfer log - SVAN 958 S/N 11740

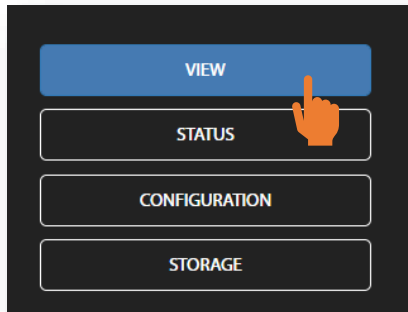
Date from... Date to... Monthly Weekly Daily Hourly 30

Current month: 4 MB Estimated: 4 MB - All times shown are expressed in Greenwich Mean Time

Date & time	Total transfer	Station upload	SvanPC++ upload	SvanNET data
2023-01-25 08:00:00	104 kB	40 kB	63 kB	1.56 kB
2023-01-25 07:00:00	228 kB	149 kB	63 kB	16 kB
2023-01-25 06:00:00	104 kB	40 kB	63 kB	1.56 kB
2023-01-25 05:00:00	104 kB	40 kB	63 kB	1.56 kB
2023-01-25 04:00:00	104 kB	40 kB	63 kB	1.56 kB
2023-01-25 03:00:00	104 kB	40 kB	63 kB	1.56 kB
2023-01-25 02:00:00	104 kB	40 kB	63 kB	1.56 kB
2023-01-25 01:00:00	104 kB	40 kB	63 kB	1.56 kB
2023-01-25 00:00:00	104 kB	40 kB	63 kB	1.56 kB
2023-01-24 23:00:00	104 kB	40 kB	63 kB	1.56 kB
2023-01-24 22:00:00	104 kB	40 kB	63 kB	1.56 kB
2023-01-24 21:00:00	102 kB	39 kB	61 kB	1.61 kB
2023-01-24 20:00:00	104 kB	40 kB	63 kB	1.56 kB

6.2 WEB INTERFACE VIEW

The **WEB INTERFACE** view is available for the stations connected to *SvanNET* and enables viewing measurement results, configuring station parameters, downloading files and measurements start/stop.



The **VIEW** button switches you to the **Live data** view (see Chapter [6.2.1](#)) in which you can view broadband results and 1/1 or 1/3 octave spectra.

The **STATUS** button switches you to the station status view (see Chapter [6.2.2](#)) in which you can check the station status and start/stop measurements.

The **CONFIGURATION** button switches you to the station **Configuration** view (see Chapter [6.2.3](#)) in which you can configure measurement and instrument parameters.

The **STORAGE** button switches you to the **Storage** view (see Chapter [6.2.4](#)) in which you can download files manually.



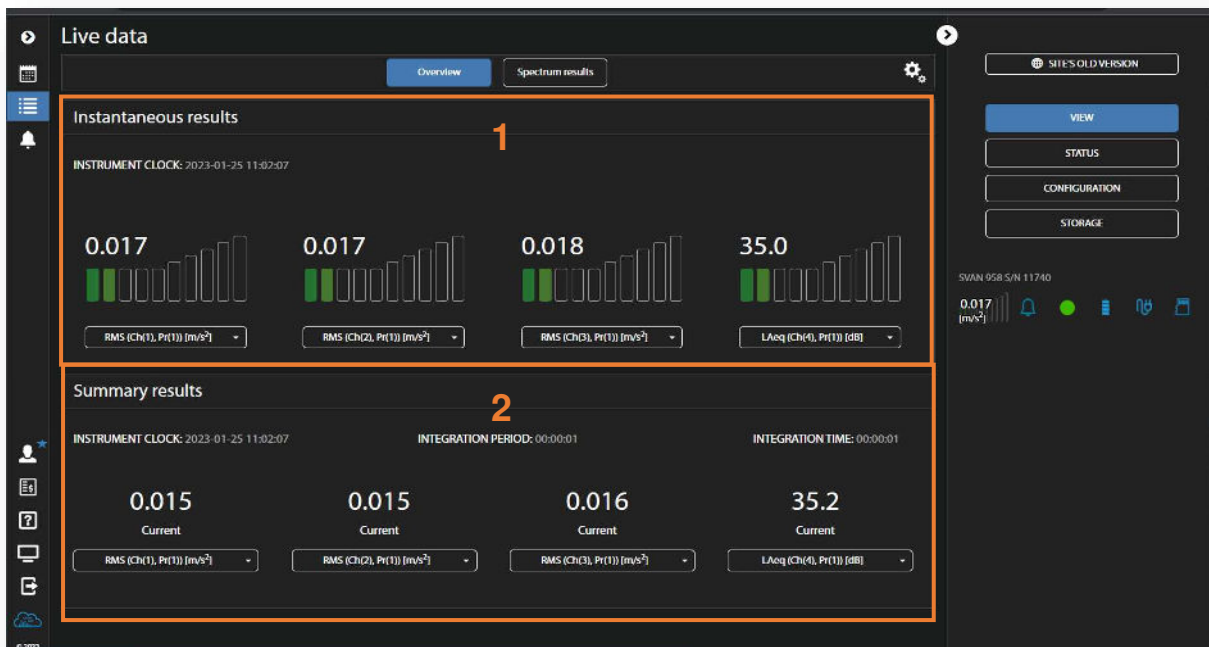
Note: Content of the **Configuration** tabs depends on the selected parameters. The objective of this manual is not to present all possible combinations of parameters, but to indicate the principles of working with *SvanNET*.

6.2.1 Live data view

The **Live data** view includes two sections: **Overview** and **Spectrum results**.

The **Overview** section displays current results measured in four channels:

1. **Instantaneous Results**, measured/averaged by 1-second period and
2. **Summary Results**, measured/averaged by the **Integration period**.



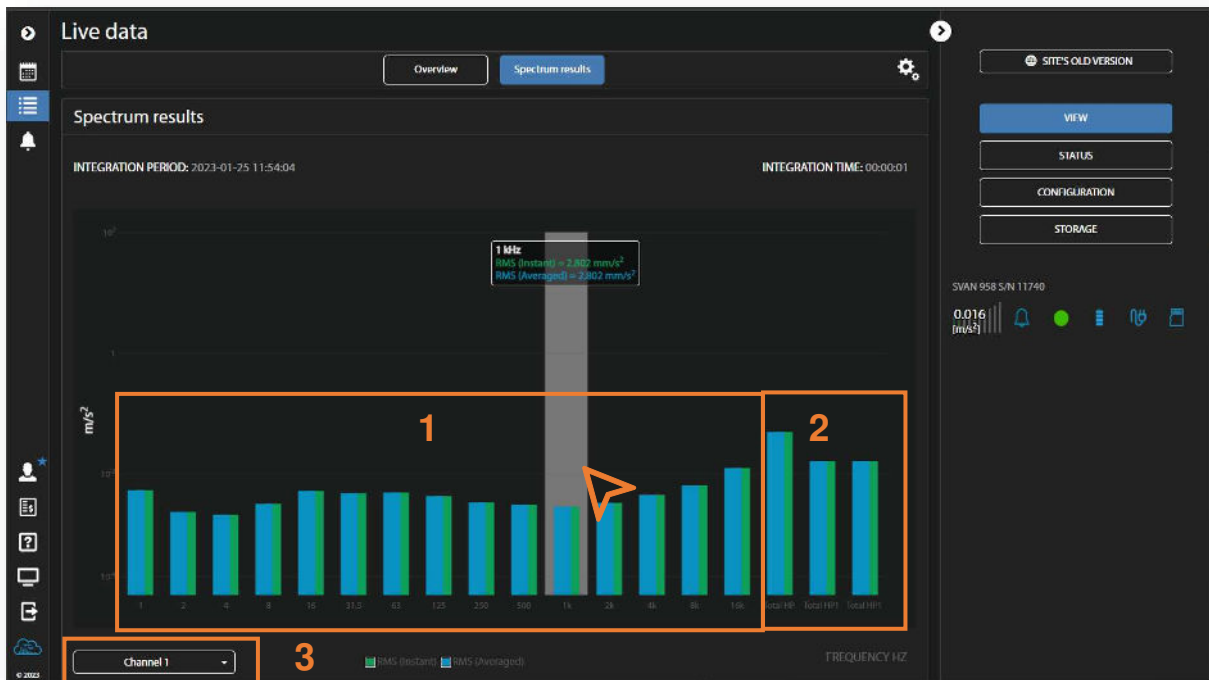
There are four selector buttons for the Instantaneous results and Summary results. To change the displayed result, click the selector button for the required Channel and choose the result.



Note: The **Instantaneous results** are not saved in the instrument's files, while the **Summary results** can be saved if the **Save summary results** option is switched on in the **STORAGE** tab.

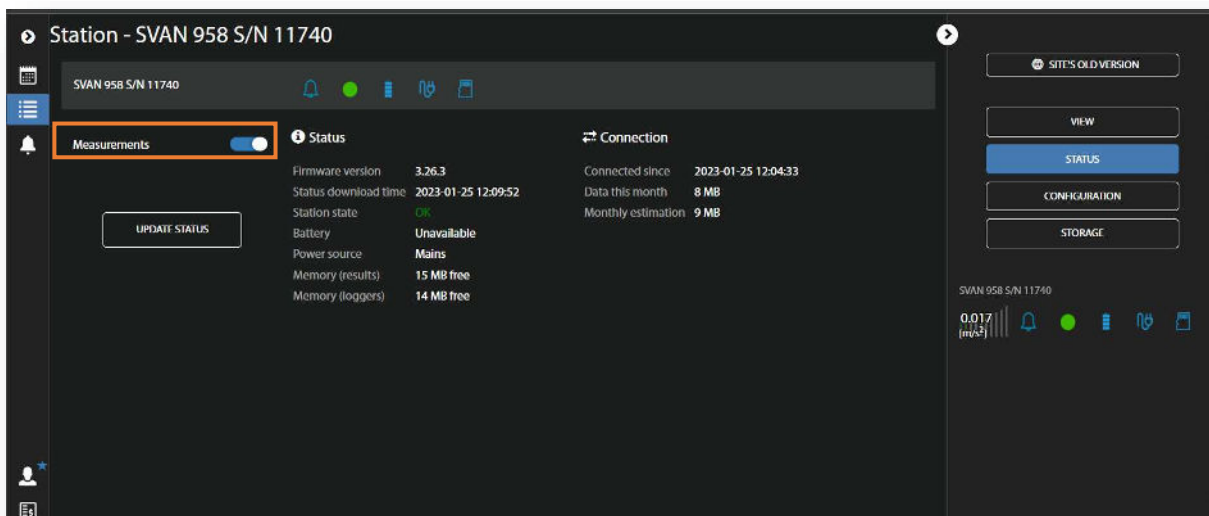
The **Spectrum results** section displays current 1/1 or 1/3 octave Instant and Averaged results (RMS or LEQ) for the selected channel.

1. Point your mouse cursor on the plot to readout the values of instantaneous and averaged results for each 1/1 or 1/3 octave band.
2. Point your mouse cursor on the last three bars of the plot to readout the values of instantaneous and averaged three Total results.
3. Select channel for results to be displayed.



6.2.2 STATUS view

The **STATUS** view is like that described in Chapter [6.1.1](#). The difference is that instead of STATUS ALARMS, in this view, you can start/stop measurements.



6.2.3 CONFIGURATION views

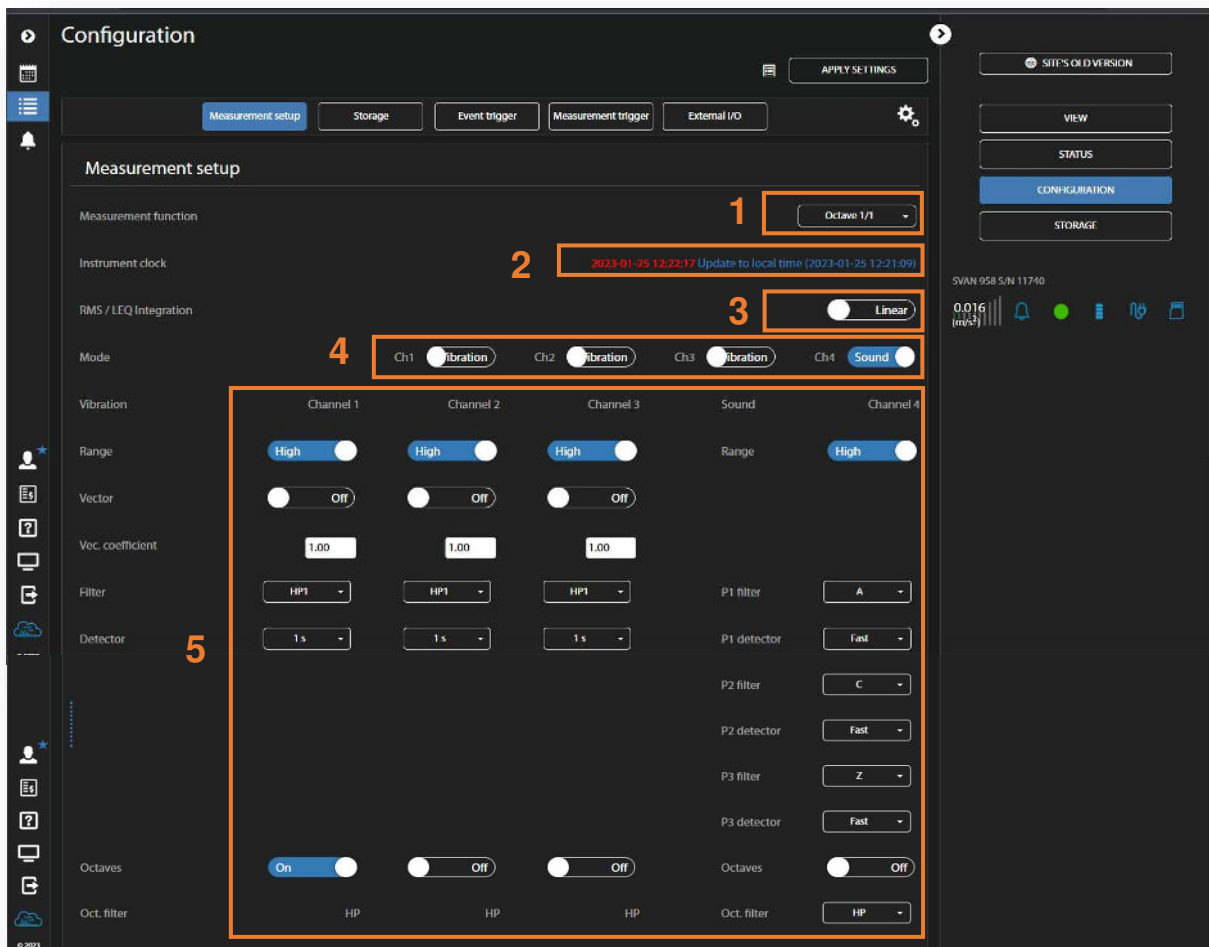
The **Configuration** view consists of several sections that enable configuring measurement parameters (**Measurement setup**), data saving (**Storage**), triggering alarms based on events (**Event trigger**), triggering measurements (**Measurement trigger**) and functionality of the external I/O port (**External I/O**).

To send new configuration to the station, click **APPLY SETTINGS**.

Measurement setup

In the **Measurement setup** section, you can:

1. Select the **Measurement function**: *Level Meter / Octave 1/1 / Octave 1/3 / FFT / Ground Vib.*
2. Update the **Instrument clock**
3. Select the type of **RMS/Leq Integration**: *Linear / Exponential*
4. Select channel **Mode**: *Vibration or Sound*



5. Configure parameters for channels and profiles:

- dynamic **Range**: *High / Low*,
- **Vector** calculation (*On / Off*) and **Vec. coefficient** for Vibration channels,
- weighting **Filter**: for Vibration channels (*HP1 / HP3 / HP10 / Vel1 / Vel3 / Vel10 / VelMF / Dil1 / Dil3 / Dil10 / W-Bxy / W-Bz / H-A / W-Bc / KB / Wk / Wd*) and for three profiles of Sound channels (*Z / A / C*),
- type of the RMS **Detector**: for Vibration channels (*100 ms / 125 ms / 200 ms / 500 ms / 1 s / 2 s / 5 s / 10 s*) and for three profiles of Sound channels (*Impulse / Fast / Slow*),
- for 1/1 or 1/3 **Octaves** analysis (*On / Off*), **Oct. filter** (*HP* for Vibration channels and *HP / Z / A / C* for Sound channels) or

- for **FFT** analysis (*On / Off*), **FFT filter** (*HP* for Vibration channels and *HP / Z / A / C* for Sound channels) and **FFT band** (*87,5 Hz / 175 Hz / 350 Hz / 700 Hz / 1.4 kHz / 2.8 kHz / 5.6 kHz / 11.2 kHz / 22.4 kHz*).

Storage

The **Storage** section allows you to program which results and with what step will be saved in files. There are two types of results, so called **Summary results** and **Time history** results.

Summary results are measured with the **Summary step** so many times as is defined by the **Repetition cycles** parameter. If the **Summary step** is longer than 25 s, the series of results for each cycle can be saved in the series of files with the default names **@RESn.SVN**, where **n** is a number of the file in this series. Summary results: RMS, VDV, CRF, OVL, Peak, P-P and MTVV for Vibration channels; SPL, LEQ, SEL, Ln, Ltm3, Ltm5, OVL, PEAK, MAX, MIN and 10 statistics for Sound channels as well as 1/1, 1/3 or FFT spectra.

Time history results are measured with the **Time history step** from the measurement start till the measurement stop and logged in the files default names **BUFFER_n.SVN**, where **n** is a number of the file in the series of such files. If the **Event trigger** is configured to switch the logging on event, the Time history results will be logged when an even occurs. Time history results: Peak, P-P, Max, RMS and VDV for Vibration channels; Lpeak, Lmax, Lmin and Leq for Sound channels.

To start configuring data storage, you should enable it switching on **Save summary results** and/or **Save time history results**.



Note: The **Save summary results** function is the analogue of the **Auto Save** function in the instrument's menu which is available only for the **Integration period** not lower than **25 seconds** – see *SVAN 958 User Manual*.

Even if both data storage option are disabled you always can set some important parameters for **Summary results** such as:

1. period of the Summary results measurement (**Summary step** is equal to the *Integration Period* in the instrument settings) and number of measurement repetitions (**Repetition cycles**),
2. if **Save statistics** is *On*, choose ten **Statistical levels** to be calculated and saved with the Summary results.

The screenshot shows the 'Configuration' screen with the 'Storage' tab active. The 'Summary results' section is highlighted with an orange box. A red '1' points to the 'Summary step' dropdown menu, which is set to '000001'. A red '2' points to the 'Statistical levels' section, which contains ten dropdown menus labeled L01 through L90. The 'Save statistics' toggle is set to 'On'. The 'Save time history results' toggle is set to 'Off'. The right sidebar shows 'SITE'S ID VERSION', 'VIEW', 'STATUS', 'CONFIGURATION', and 'STORAGE' buttons. The bottom right corner displays 'SVAN 958 S/N 11740' and a vibration level of '0.016 [m/s²]'.

Summary step (Integration period) defines the period during which Summary results are measured (integrated) with filters and time constant defined in the MEASUREMENT SETUP tab and saved in a file as the set of Summary Results.

The Summary step can be selected in the pop-up list in the range from 1s to 24h.

Repetition cycles defines the number of automatic repetition of measurements with the defined integration period. If you select **Infinite**, measurements will be repeated till the manual stop. If the number of cycles is defined, measurement cycles will be stopped after that number of measurements automatically or earlier manually.

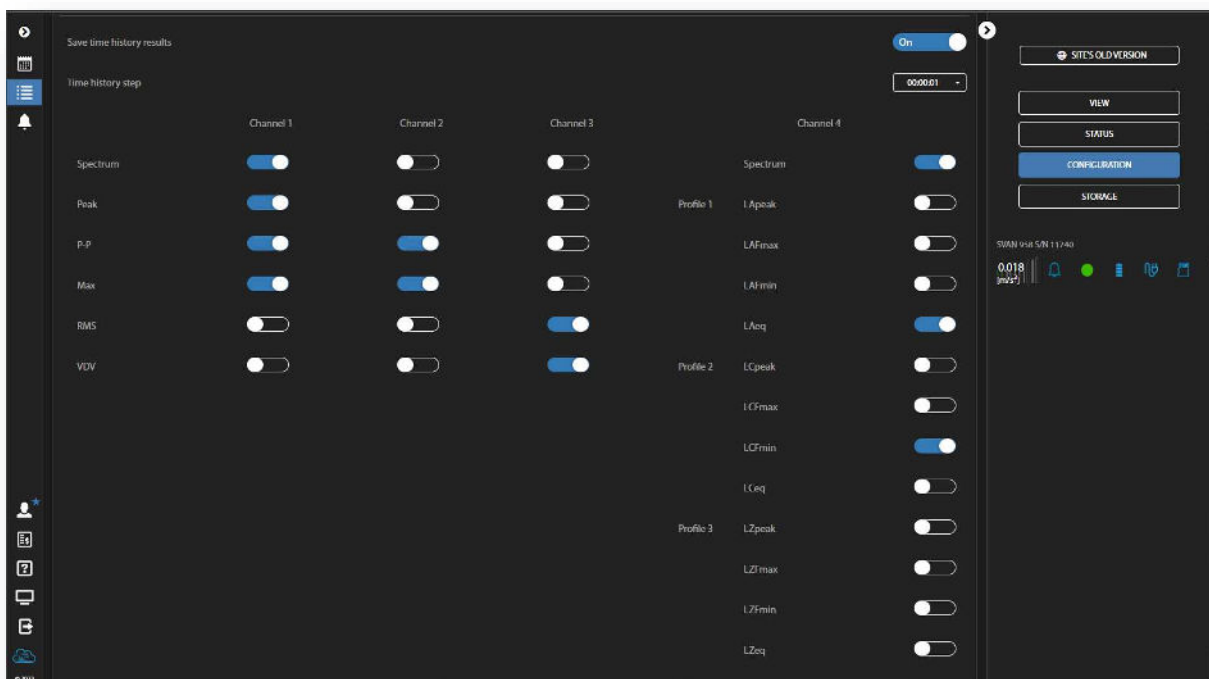


Note: For monitoring purposes it is recommended to set the **Infinite** value which is also a default value of this parameter.

You can define ten statistical noise levels, named from **L01** to **L99**, to be calculated, displayed and saved in the file as Summary results.

Statistical noise level **Lnn** is a level in dB which was exceeded during **nn** percent of the Integration period. Statistical noise levels are calculated from histogram, created from 100ms Leq results (see Appendix D).

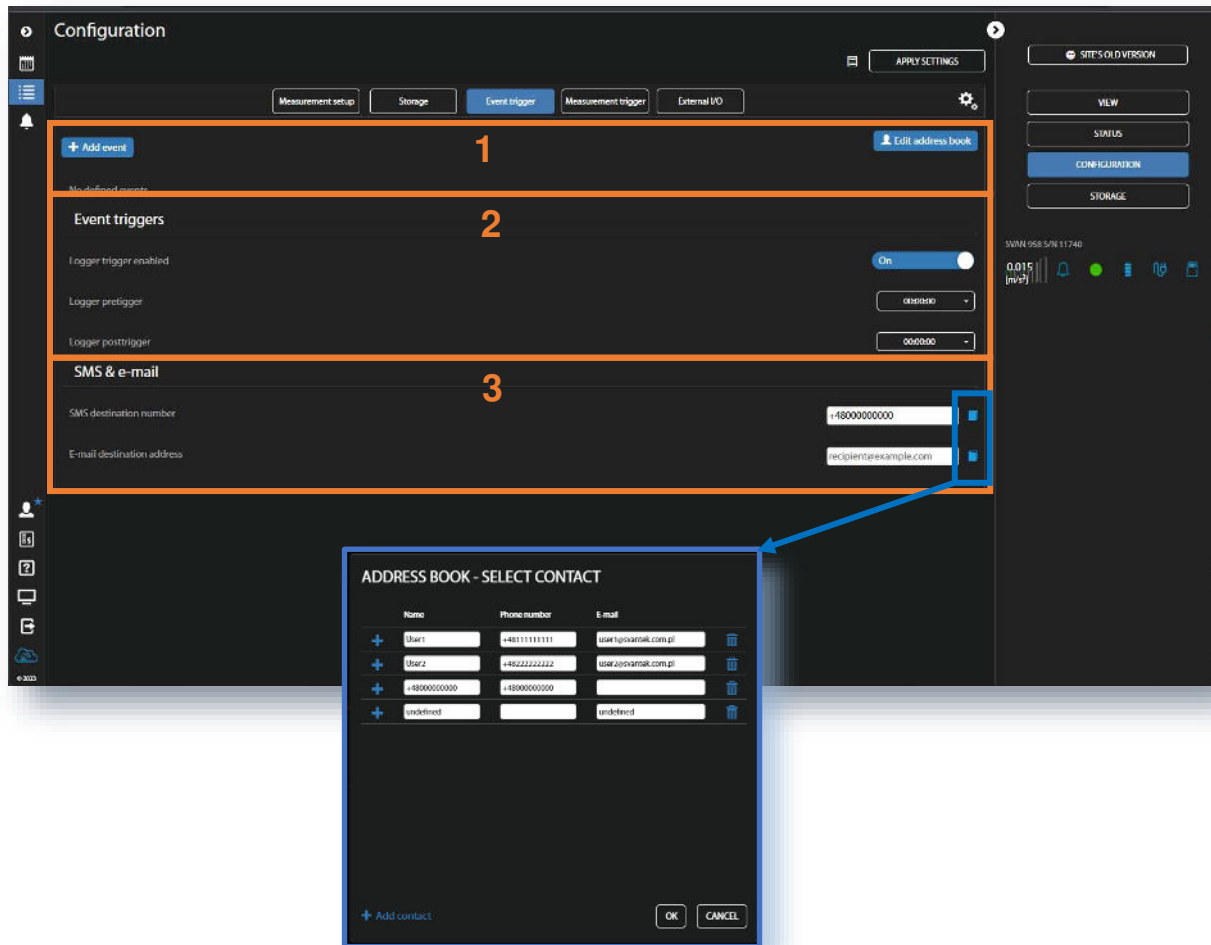
In the **Save Time history results** storage option is **On**, you can define Time history step, switch on the **Save vector** option and select results to be saved in the logger file.



Event trigger

In the **Event trigger** section, you can:

1. create events for triggering logger and alarm notifications,
2. enable **Logger trigger** and set **Logger pretrigger** and **Logger posttrigger** periods,
3. enter recipient SMS and E-mail or select the recipient from the Address book.



Events are specified as a combination of superimposed **CONDITIONS** (logical AND) such as specific time intervals (**TIME CONDITIONS**) in which measurement threshold levels are exceed or system events occur (**TRIGGER**).



Each Event may be connected with special triggers (**Actions**) such as: time-history data recording to the logger file (**Logger**), generation of the alarm signal on the I/O socket (**Alarm flag**), alarm SMS sending (**SMS alarm**) or alarm e-mail sending (**E-mail alarm**).

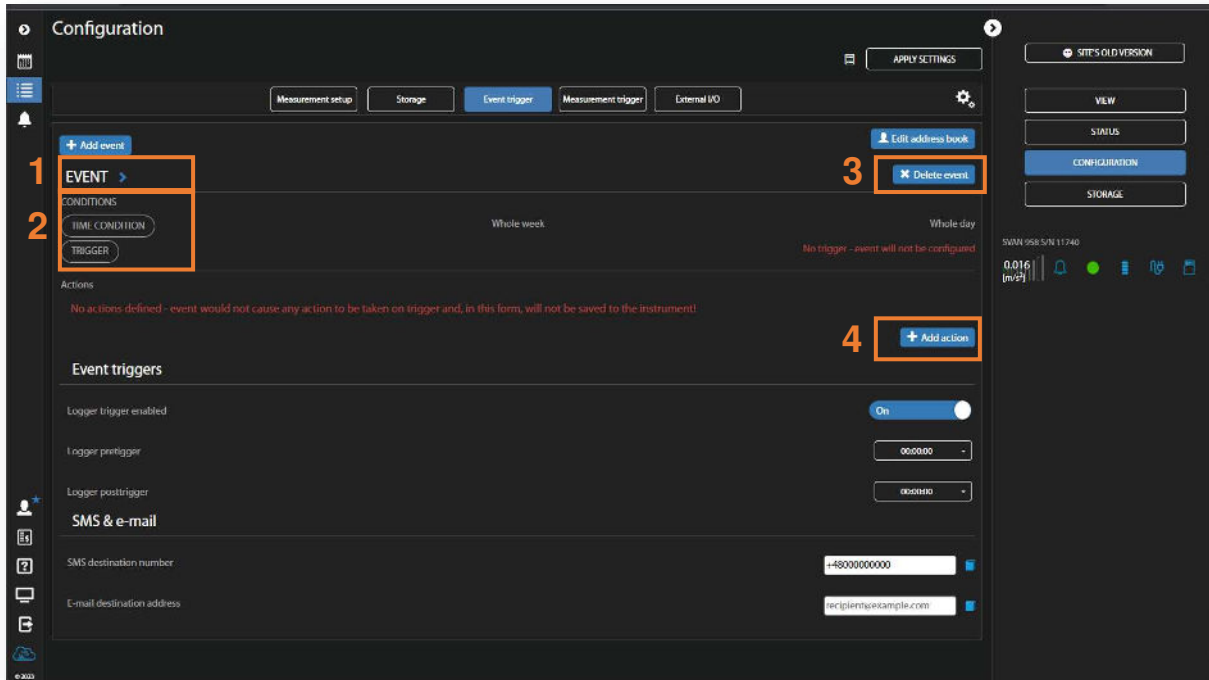
You can edit the book containing SMS and E-mail recipients addresses clicking **Edit address book**.

When events are defined the **Event trigger** section shows the list of events.

Creating Events

To create new event, click **+Add event**. The new **Event** area will appear, in which you can:

1. rename the event, if necessary, clicking , switch it on/off or hide the event settings clicking ,
2. configure conditions, clicking the appropriate button (**TIME CONDITIONS** and **TRIGGER**),
3. delete the event clicking **x Delete event**,
4. add actions clicking **+Add action**.

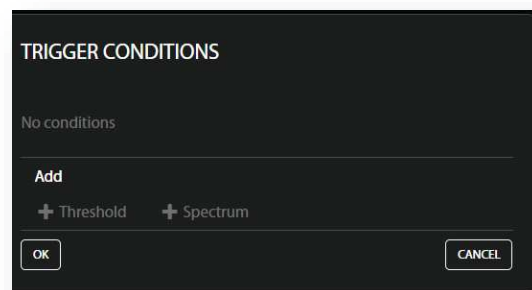


Note: You cannot change condition time intervals, they are always **Whole week** and **Whole day**, therefore the **TIME CONDITION** button is not active.

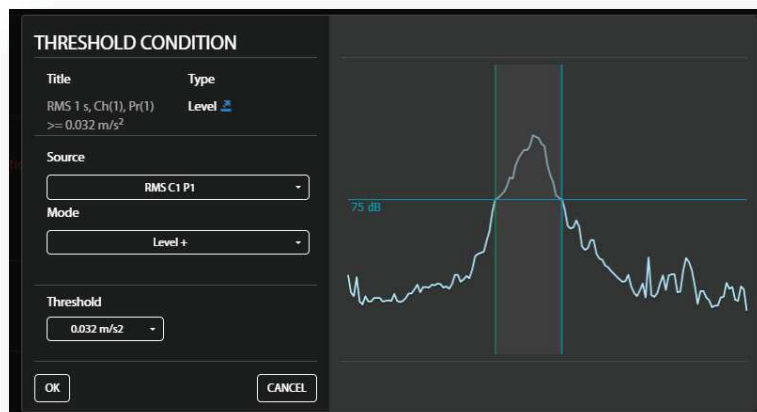
Configuring Conditions

If you click the **TRIGGER** button, the **TRIGGER CONDITIONS** configuration box will pop-up.

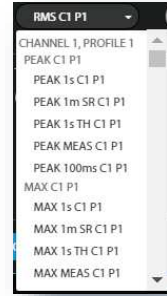
In this box, you can add the condition type: **Threshold** or **Spectrum** (if 1/1, 1/3 Octave or FFT spectrum is set as a **Measurement function** in the **Measurement setup** section).



The Threshold condition can be of *Level+*, *Level-*, *Slope+*, *Slope-*, *Gradient+* or *Gradient-* type (**Mode**). The condition is fulfilled during the period in which the controlled value of the selected result (**Source**) will be higher/lower than the **Threshold** level.

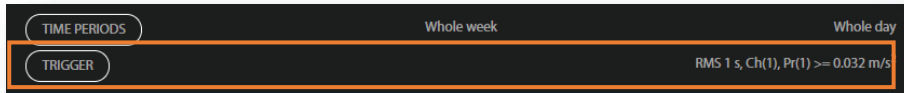


You can select different results as a **Source** (*PEAK, MAX, RMS, P-P, VDV, Lpeak, Leq, LFmax, LFmin*) from four channels (*C1, C2, C3 or C4*) and three profiles (*P1, P2 or P2*) or **VECTOR**, measured by: *100ms, 1s, 1m* or measurement time step (*MEAS*).

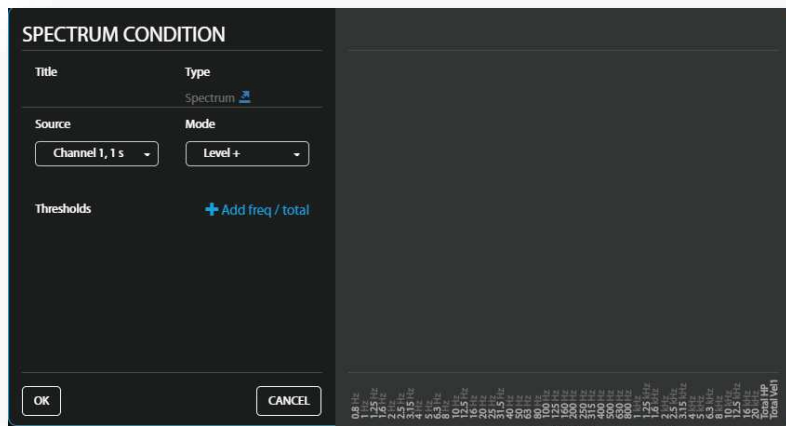


In the right-hand example, **1m SR** means that the Integration period for the Summary results (**SR**) was set to 1 minute, while **1s TH** means that the Step for the Time-history (**TH**) was set to 1 second.

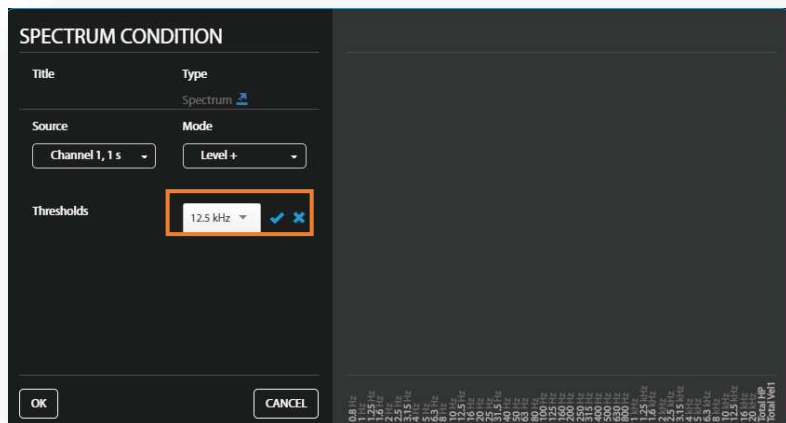
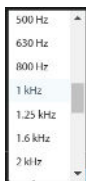
After confirmation (**OK**) the pop-up box closes, and the selection will be presented in the line of the **Trigger** button.



In the **SPECTRUM CONDITION** pop-up window, you can define one 1/3 octave band, Total HP or Total Vel that will be compared with the threshold level. If the measured value (**Source**) for selected 1/3 band or Total fulfils the trigger condition (**Mode: Level+, Level-, Slope+, Slope-, Gradient+ or Gradient-**) the trigger will be switched on.



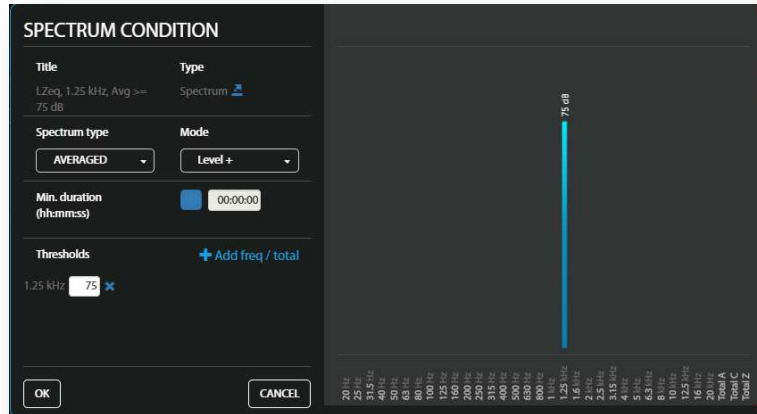
To start mask creation, click the **+ Add freq / total** field, select the spectrum frequency or the Total result and click confirm or cancel.



If you confirm the frequency, then you should select the threshold level for that frequency/Total in the **Thresholds** position.

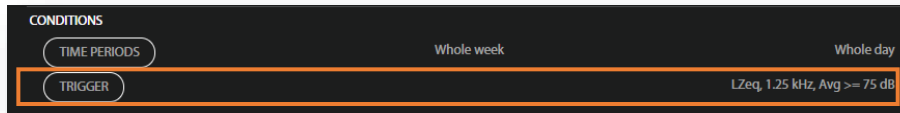
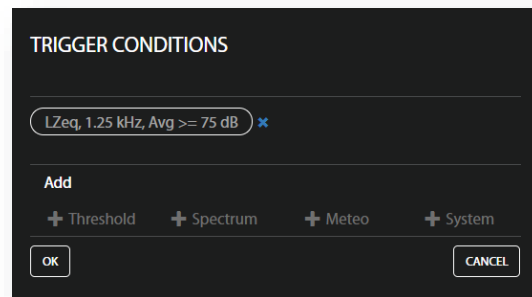
The blue bar will be displayed indicating the selected spectrum band and the threshold level.

Click **OK** to confirm made changes.



In the TRIGGER CONDITIONS pop-up box, click **OK** to confirm the defined trigger condition or click **CANCEL** to reject it.

After confirmation (**OK**) the pop-up box closes, and the selection will be presented in the line of the **Trigger** button.



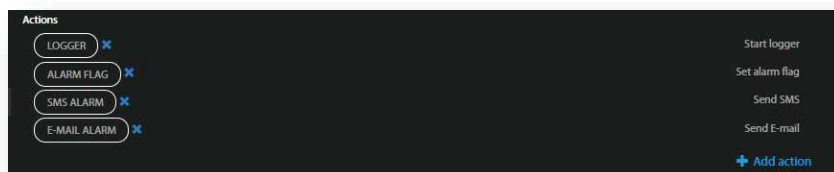
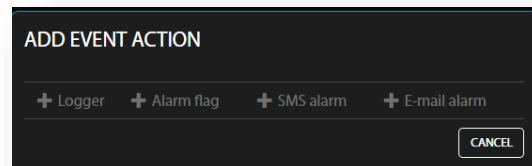
Creating Actions

To create new action, click the **+ Add action** field and in the **ADD EVENT ACTION** pop-up box, click the action you wish to add and configure: triggering data logging (**Logger**), sending information about alarm using remote commands (**Alarm flag**), sending SMS and/or e-mail notification to the selected recipient (**SMS alarm** or **E-mail alarm**).

After occurrence of the event, actions will be performed during the time the event is active, at its beginning or at the end depending on the action type.

You can select several or all actions which will be displayed in the **ACTIONS** section.

Here you can cancel actions clicking **X**.

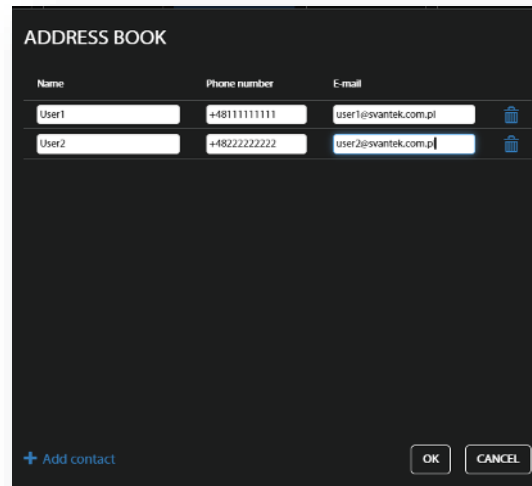


Address book

You can edit the address book clicking **Edit address book** being in the **Event trigger** section of the **Configuration** view.

To add the address, click **+Add contact**. To remove the address, click the bin icon.

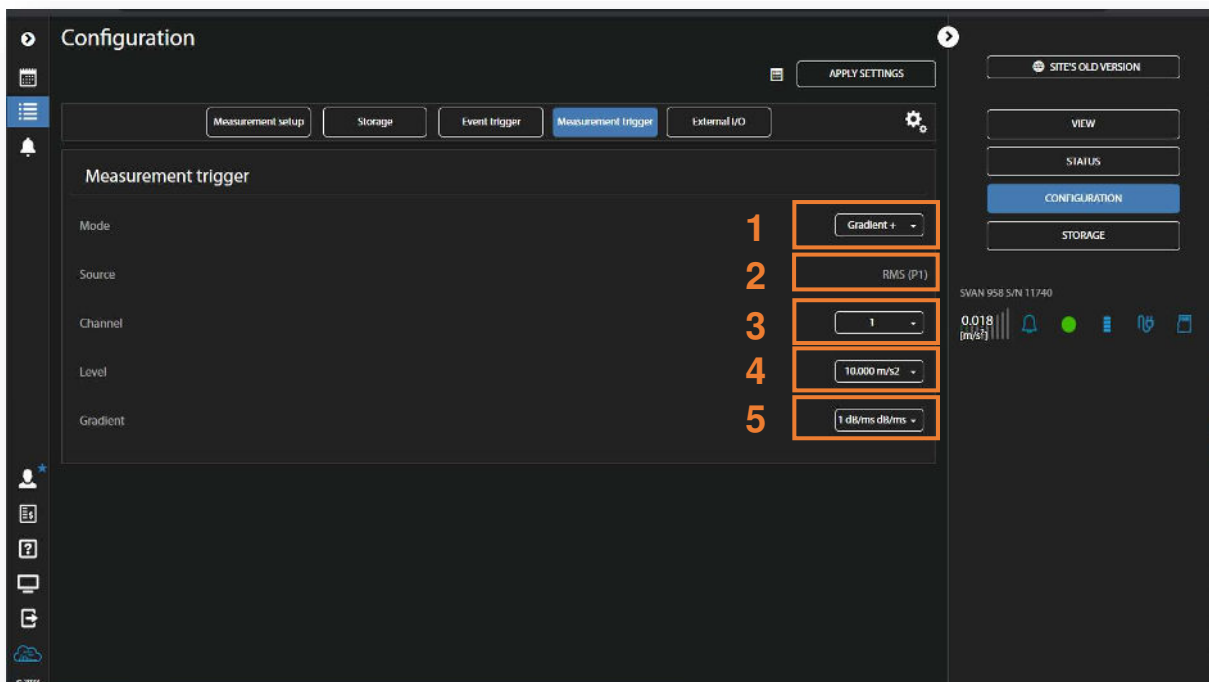
If alarm appears the special message will be sent to the phone number or to the e-mail address informing the recipient about the alarm.



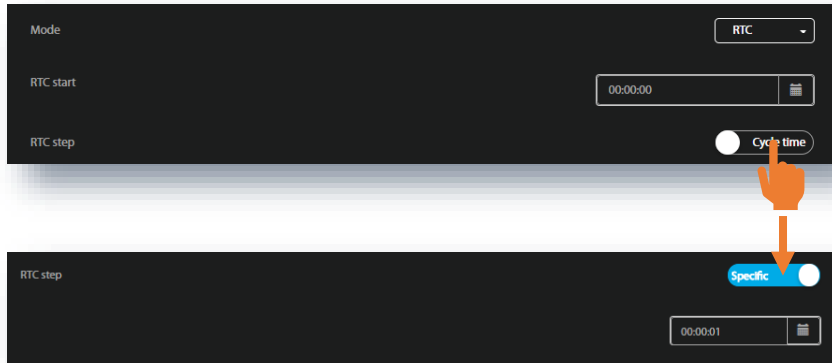
Measurement trigger

In the **Measurement trigger** section, you can set:

1. trigger **Mode**: *Off, Slope+, Slope-, Level+, Level-, Gradient+, RTC*
2. **Source** of the triggering condition (excluding the RTC trigger mode): *Vector, Vec. & sound* (Vector source is available if the **Vector** is switched on in the **Measurement setup** section), *RMS(P1), Ext. trigger* (for the Slope and Level trigger modes)
3. **Channel** of the trigger source: **1, 2, 3** or **4**
4. threshold level of the trigger source (**Level, Vector Level**): depending on the **Source** type and
5. threshold level of the trigger source gradient for the Gradient trigger mode (**Gradient**).



RTC trigger starts the measurement at the defined time (**RTC start**) and repeats them with the step (**RTC step**) equal to the **Cycle time** or defined time (**Specific**).



External I/O

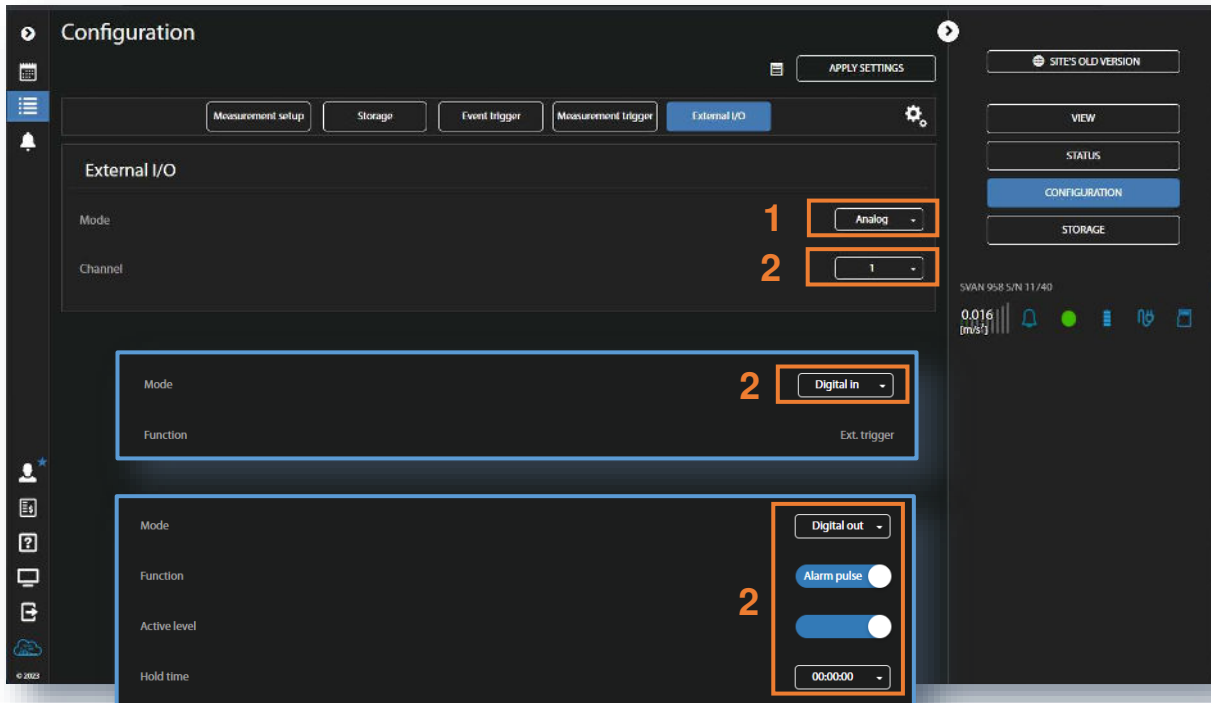
In the **External I/O** section, you can:

1. select **Mode** of the External I/O port: *Analog, Digital in, Digital out*
2. configure it according to the connected device (for example, the light and sound alarm).

In the *Analog* mode, you should select the **Channel** which will be connected to the I/O port.

In the *Digital in* mode, the I/O port is working as *External trigger (Function)*.

In the **Digital out** mode, you should select **Function**: whether the I/O port is working as an *Alarm pulse* or a *Trigger pulse* and define the period during which the Digital-out signal will be present (**Hold time**). In the first case, you should set the pulse **Active level**: *High* or *Low*. In the second case, you should set **Polarisation** of the generated pulse: *Positive* or *Negative*.



Note: See *SVAN 958 User Manual*.

6.2.4 DATA FILES view

The file storage window presents a list of files saved in the instrument's SD-card memory. The list includes only files from a single directory on the memory card and it initially shows the content of the current working directory.

In the **Storage** view, you can:

1. Download or delete individual files by clicking the righthand icons on the file line.
2. Select several files and download or delete selected files.
3. Download or delete all files.

The screenshot displays the 'Storage' view of the instrument's interface. At the top, it shows 'Files total: 785, selected: 2,234 kB' and 'Showing: 1 - 30 of 784'. The main area is a table with columns: NAME, TYPE, DATE & TIME, and TOTAL SIZE. The table lists files with names like @AB1624, @AB1623, @AB1622, @AB1621, @AB1620, @AB1619, @AB1618, @AB1617, @AB1616, @AB1615, and @AB1614, all of type 'Results' and size '1.17 kB'. A red box labeled '1' highlights the download and delete icons for the first file. A red box labeled '2' highlights the selection checkboxes for three files. A red box labeled '3' highlights the 'Download all', 'Download selected', 'Delete all', and 'Delete selected' options in the right-hand menu. The interface also shows a top status bar with file counts and a right-hand sidebar with buttons for VIEW, STATUS, CONFIGURATION, and STORAGE.



Note: It is not possible to delete individual Time history files with names *Buffer_xx* but only all of them! In case you have selected some of these files, the program will inform you that all files will be deleted and will require your confirmation.

7 SV 258 PRO MONITORING STATION TECHNICAL DATA¹

Nr	Parameter	Value/ Description
Physical data		
1	Dimensions	SM 258 PRO – 300 x 260 x 190 mm SA 250 – 450 x 400 x 155 mm
2	Weight	SM 258 PRO – ~10 kg SA 250 – ~4 kg
3	Leakproof classification	SM 258 PRO – IP 65 according to EN 60529 (1997) + A1 (2000)
4	Working temperature range	-30°C do +60°C (Ambient air temperature, without direct sunlight). <i>Note: Outside this range the station will automatically switch itself off.</i> <i>Note: In charging mode the range of working temperature is: -20°C to +50°C !</i>
5	Storage temperature range	SM 258 PRO and SA 250: -40°C to +70°C
6	Working relative humidity range	0 – 100 %RH
Power Supply		
1	Internal battery	Europower EP 17-12 (12 V, 17 Ah)
2	SV 258 PRO power consumption without charging	Modem is switched off: ~1,2W Mean infrequent short transmissions: ~1,8W Continuous transmission: ~2,2W
3	Operating time when powered from the internal battery, (20°C, 17 Ah, fully charged)	Modem is switched off: ~170h (~7d) Mean infrequent short transmissions: ~110h (~4,5d) Continuous transmission: ~90h (~4d)
4	SV 258 PRO power consumption including charging	up to 30W ±5%

¹ Our Company's policy is based upon continuous product development and innovation. Therefore, we reserve the right to change the specifications without any prior notice whatsoever

5	External DC input	voltage: 10,5 V to 28 V Note: When external DC input voltage is in the range 11 V to 15 V, the station is powered from the external DC source but the internal battery is not charged!
6	External DC power supply SB 270	15 V, 4 A, 60 W IP 65 according to EN 60529 (1997) + A1 (2000)
7	External battery SB 272	Europower EP 33-12 (12 V, 33 Ah)
8	Operating time when powered from the internal and external SB272 batteries, (20°C, 17+33 Ah, fully charged)	Modem is switched off: ~500h (~21d) Mean infrequent short transmissions: ~330h (~14d) Continuous transmission: ~270h (~11d)
9	Solar panel (option)	System best fit with solar panel with a MPPV voltage $17,5\pm 0,5V$ and power in the range of 30W to 120 W (without control system). Note: Size and power of the panel depend on the climate of the area where the station operates.
Measurement Line		
1	SVAN 958 Meter/analyser	Manual and data specification are available at http://www.svantek.com
2	SV 84 accelerometer	Triaxial accelerometer with sensitivity 1000 mV/g. Specification is available at http://www.svantek.com
3	MK 255 microphone (optionally)	Microtech Gefell pre-polarised 1/2" condenser microphone with sensitivity 50 mV/Pa. Specification and characteristics are presented in Appendix C for the SVAN 958 User Manual at http://www.svantek.com
4	SA 277 outdoor microphone kit (optionally)	Set of weather protection for SV 12L preamplifier and MK 255 microphone. Characteristics of SA 277 and Outdoor compensation filter are presented in Appendix C for the SVAN 958 User Manual at http://www.svantek.com
<p>Note: With the use of Outdoor environmental type compensation filter (filter must be defined in SVAN 958, see Chapter 2.1.3) the acoustic characteristics of SA 277 conforms the class 1 sound meters and IEC 61672:2002 standard for the direction 90 degree (parallel to the microphone membrane).</p>		

3G modem		
1	modem type and features	GeMalto® EHS6-T Terminal Five Bands UMTS (WCDMA/FDD): 800, 850, 900, 1900 and 2100 MHz
2	modem specifications	HSDPA Cat.8 / HSUPA Cat.6 data rates DL: max. 7.2 Mbps, UL: max. 5.76 Mbps EDGE Class 12 data rates DL: max. 237 kbps, UL: max. 237 kbps GPRS Class 12 data rates DL: max. 85.6 kbps, UL: max. 85.6 kbps
3	modem approvals	R&TTE, GCF, CE, FCC*, PTCRB*, IC*, UL AT&T* and other local approvals and provider Certifications *) EHS6-T only
4G modem		
1	modem type and features	Cinterion® PLS62T-W Gateway LTE (1,2,3,4,5,7,8,12(17),18,19,20,28), 3G (1, 2, 4, 5, 8, 9, 19), 2G Quad Band
2	modem specifications	LTE Cat.1 data rates DL: max 10.3Mbps UL: max. 5.2 Mbps HSPA+ Cat.8 (ELS61-US) data rates DL: max. 7.2 Mbps, UL: max. 5.76 Mbps GPRS Class 12 data rates DL: max. 85.6 kbps, UL: max. 85.6 kbps
3	modem approvals	CE, RED, GCF, PTCRB, IC, UL AT&T and other local approvals and provider Certifications WEEE, EuP, RoHS and REACH compliant

8 LIST OF RELATED DOCUMENTS

1. SVAN 958 User Manual (www.svantek.com)
2. SvanNET User Manual (www.svantek.com)
3. SvanPC++ User Manual (www.svantek.com)
4. SV 84 Specification (www.svantek.com)
5. GeMalto® EHS6 Terminal User Manual (www.gemalto.com)
6. Cinterion® PLS62T-W Gateway (www.thalesgroup.com/IoT)
7. SA 277 Assembly Guide (www.svantek.com)