

## SV 258 PRO Building Vibration & Noise Monitoring Station

### What's inside?



The SV 258 PRO kit consists of two carrying cases. The main unit is a waterproof carrying case with internal 17 Ah battery and internal charging unit supporting powering from external DC or solar panel.

The SVAN958A Class 1 sound and vibration level meter is installed inside.

The outdoor charger and vibration accelerometer kit are packed inside the second transportation case.

The kit includes license for SvanPC++ software and a basic SvanNET account. Each kit has its factory calibration certificate and 36 months warranty card.

### Dedicated Firmware

From September 2018 the SV 258 PRO can be used with a new firmware for building vibration.

The new firmware simplifies setting up the station in accordance to international and local standards such as DIN 4150-3 or BS 7385-2.

The biggest advantage of the new firmware is the real-time vibration events analysis in the unit either with FFT or 1/3 octave and direct comparison to criterion curves on-site.

In practise this means that station can generate alarms within a couple of seconds.



## Building Vibration Events

When the curve selected for a given type of building is used as the event trigger, the Peak Particle Velocity (PPV) and Dominant Frequency (DF) is compared against the curve. If the PPV value exceeds the curve limit, the event starts and lasts in accordance with the Event Duration setting. The Event Duration parameter should be set accordingly to observed vibration type.

At the Event Start the Alarm Lamp, E-mail Alarm and SMS Alarm are activated. It is necessary to activate at least one action: Lamp, SMS or E-mail in order to Start an Event. The option Alarm Interval allows to set up a break-time before next SMS or E-mail will be sent. The reduction factor works as the curve multiplying factor and allows the curve to be moved up or down, so the alarm can be started earlier or be postponed.

### Example Event Settings



**Trigger** is set to DIN 4150-2, the building type, marked as Line 2 (L2).

**Reduction Factor** is set to multiplying factor of 0.5 to shift down the L2 curve.

When the trigger condition is met, the **Alarm Lamp** will turn on and stay on for 1 second according to the setting **Hold Time**.

When the trigger condition is met, one **SMS** and one **E-mail** will be sent to **Recipient**: Adam at the time of alarm.

**Alarm Interval** is set to 1 minute, so the next SMS or E-mail would be sent after 1 minute.

**Event Duration** is set to 4 seconds, which means that the event will last 4 seconds starting from the trigger.

## Event Trigger (Alarm)

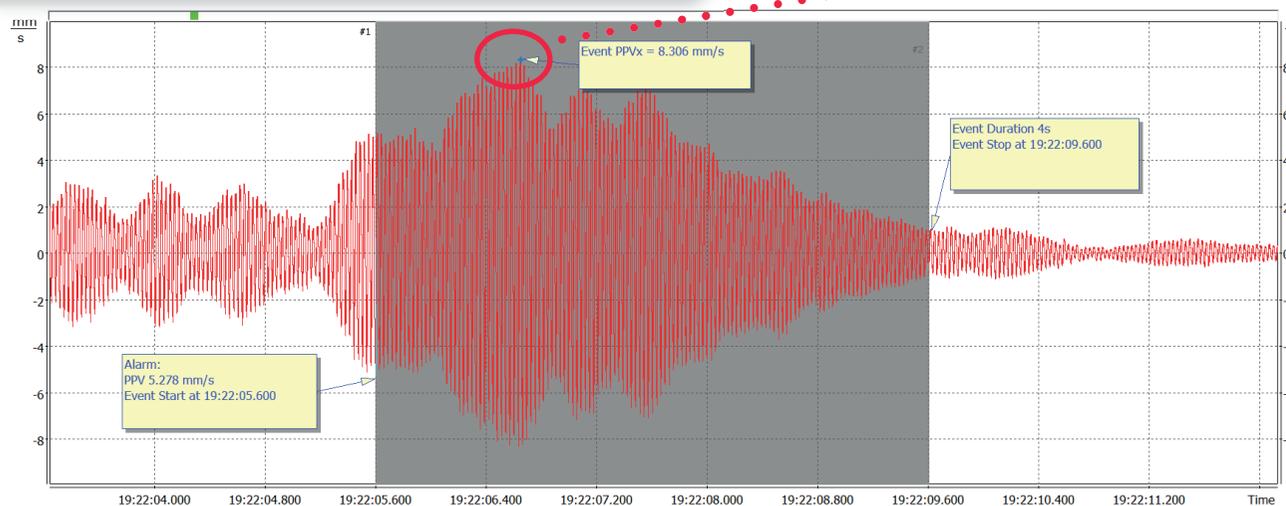
At the given example the **Event** has been started by the PPV of 5.278 mm/s at 33 Hz. The PPV value meets the condition of Reduction Factor that has been set to 0.5 as the value of 5.278 mm/s is at 50% of the L2 curve height at this point (the L2 at 32.9 Hz is around 10.5 mm/s). The SVAN958A stores the value that triggered the Event as the Alarm value that can be displayed in SvanPC++:

	X	Y	Z	
PPV	5.278	2.133	0.688	mm/s
Dominant frequency	32.593	32.959	32.593	Hz

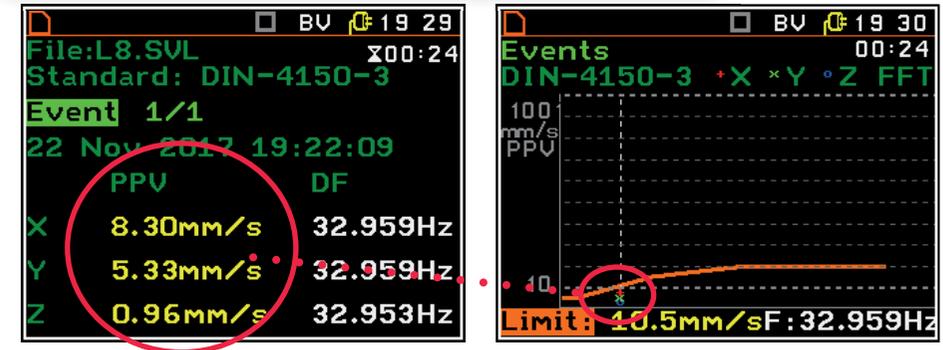
## Event PPV

According to the **Event Duration** setting, the Event lasted 4 seconds (Stop at 19:22:09.600). At the Stop point the system analyses the 4 seconds of previous data to determine the Event **maximum PPV** in each axis, which in this example is the value of 8.306 mm/s at 32 Hz at the X axis

## Event Value in SvanPC++ software

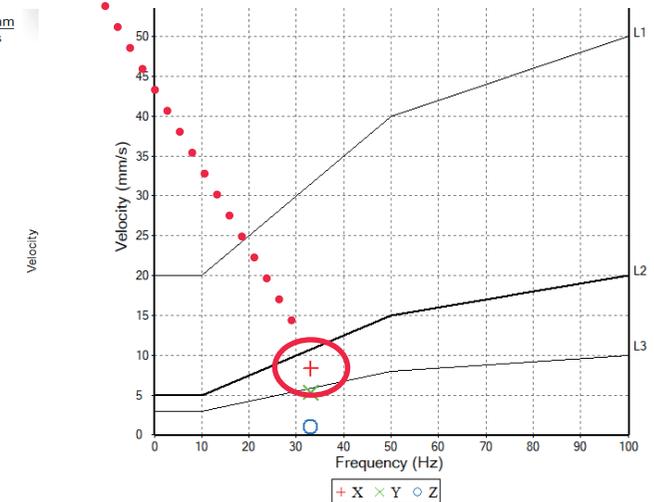


## Event Value on the SVAN 958A display



Note: When station is exchanging data with SvanNET the Criterion Curve view is not accessible due to limited computational power of the instruments.

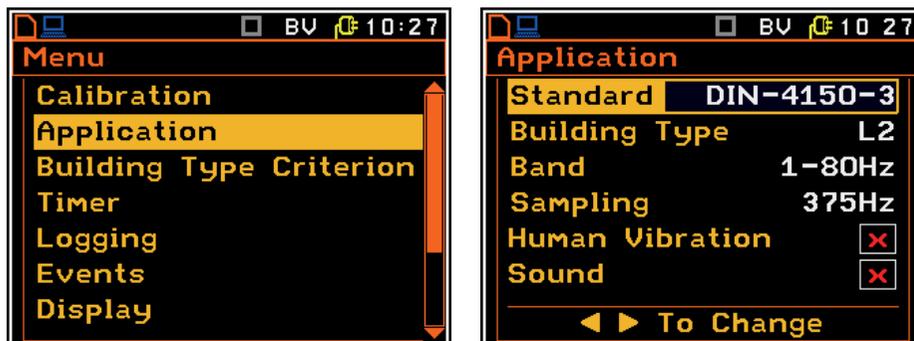
	X	Y	Z	
PPV	8.306	5.339	0.963	mm/s
Dominant frequency	32.959	32.959	32.959	Hz



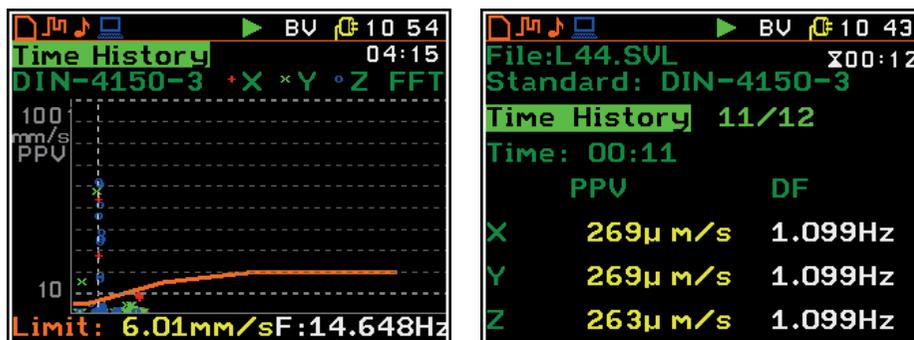
## DIN 4150-3 Application

SV 258 PRO can be easily configured to measure building vibration in accordance to DIN 4150-3, both for short-term as well as continuous measurements.

- 1) Go to Menu then Application and select standard DIN 4150-3. Select one of the criterion curves for the given building type (L1/L2/L3). DIN 45669-1 specifies two filters 1-80 Hz and 1-315Hz for vibration measurements in the vicinity of railway traffic routes or blasts.



Once the application is selected then 2 types of DIN 4150-3 results view will be available on the display. Use Alt+UP / DOWN to switch view:



Note: When station is exchanging data with SvanNET the Criterion Curve view is not accessible due to limited computational power of the SVAN 958A instrument.

## DIN 4150-3 Events

SV 258 PRO uses an advanced FFT moving window that analyses all vibration peaks to determine their dominant frequencies. This solution enables comparison of the vibration values to DIN 4150-3 curves in real-time.

- 1) Go to Menu then Events and activate up to 5 events. Select the L2 criterion curve as the event trigger. You can shift up/down the L2 curve using the reduction factor (multiply factor).



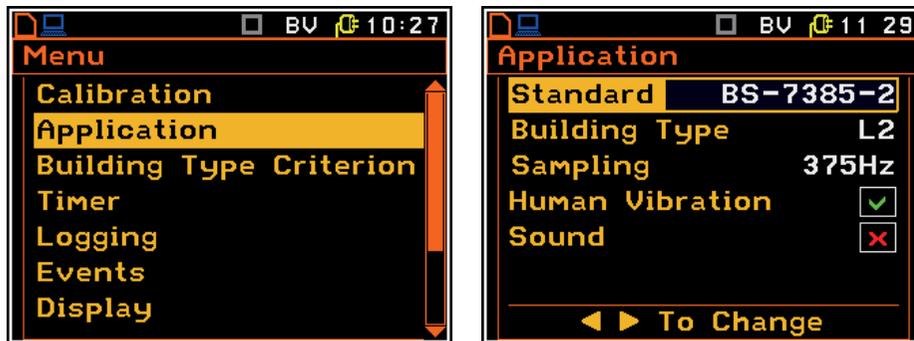
Event can trigger Alarm Lamp, Email or SMS. It is important to set up the event duration for the length of observed vibration activity - for example 10s for train passage. To browse events on the screen use UP/DOWN arrow in DIN 4150-3 view.



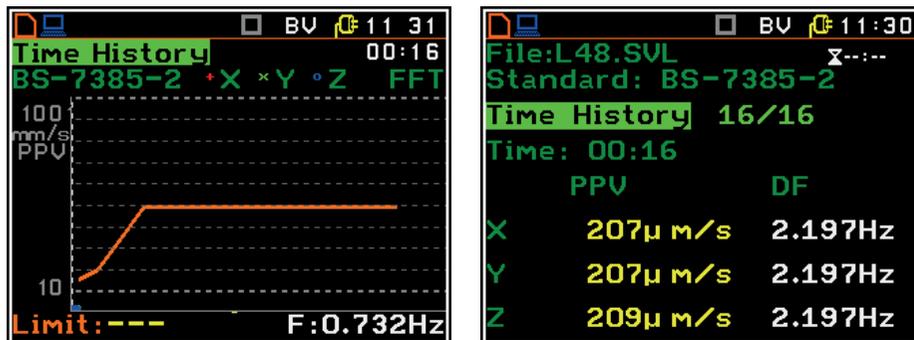
## BS 7385-2 Application

SV 258 PRO can be easily configured to measure building vibration in accordance to BS 7385-2. In addition the station can measure VDV simultaneously.

1) Go to Menu then Application and select standard BS 7385-2. Select one of the criterion curves for the given building type (L1/L2). The sampling rate will be adjusted automatically. To enable VDV recording select Human Vibration option.



Once the application is selected then 2 types of BS 7385-2 results view will be available on the display. Use Alt+UP / DOWN to switch view:



Note: When station is exchanging data with SvanNET the Criterion Curve view is not accessible due to limited computational power of the SVAN 958A instrument.

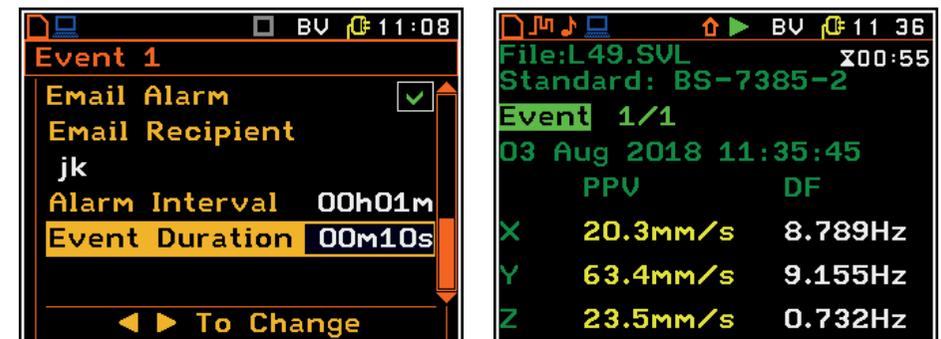
## BS 7385-2 Events

SV 258 PRO uses an advanced FFT moving window that analyses all vibration peaks to determine their dominant frequencies. This solution enables comparison of the vibration values to BS 7385-2 curves in real-time.

1) Go to Menu then Events and activate up to 5 events. Select the L2 criterion curve as the event trigger. You can shift up/down the L2 curve using the reduction factor (multiply factor).



Event can trigger Alarm Lamp, Email or SMS. It is important to set up the event duration for the length of observed vibration activity - for example 5 to 10s for train passage. To browse events on the screen use UP/DOWN arrow in BS 7385-2 view.



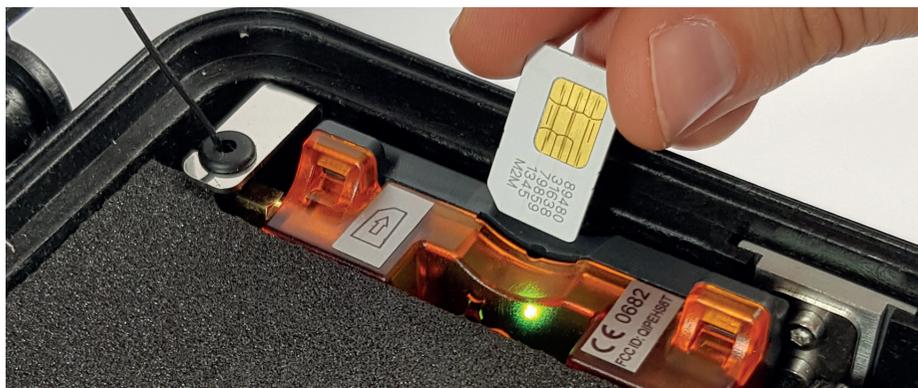
## Before you go on site

It is strongly recommended to configure the remote communication before going on site. Start from opening the SV 258 PRO station. Locate the 3G modem on the right-hand side of the case.



## Getting started

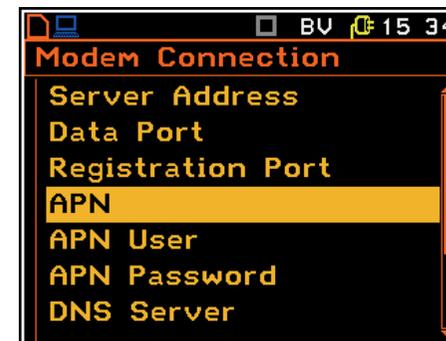
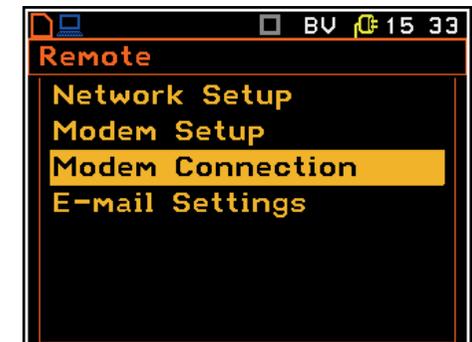
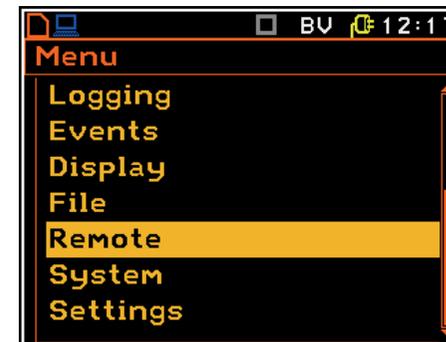
1) Insert a normal SIM card into the slot in the modem. The SIM card PIN protection must be disabled. A click sound indicates that the SIM card is in the right orientation. If necessary use a tool (e.g. pen) to push the SIM right in.



## Access Point Name

1) The station is programmed to automatically establish a 3G connection with SvanNET. It takes up to 5 minutes to connect. The most important parameter of the connection is the APN (Access Point Name). The default setting for the APN is "internet".

It is possible that your Internet provider is using a different APN, in which case the APN must be entered manually, either via the PC software or the SVAN958A menu - Remote/Modem Connection.



## Connection to SvanNET

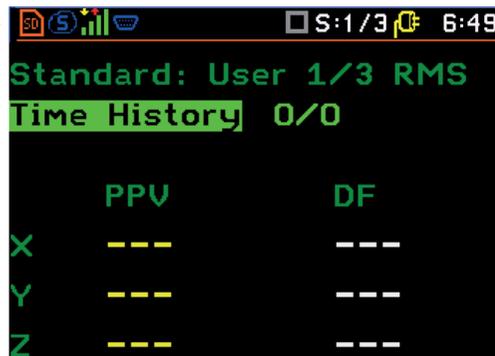
### About SvanNET



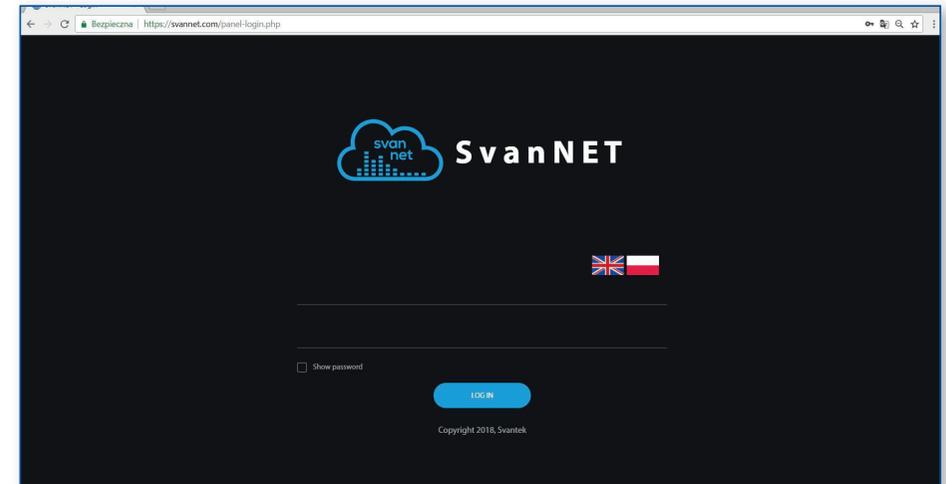
SvanNET enables an easy configuration of remote connection, monitors connection stability, measurements and station status (e.g. powering). The advanced architecture of SvanNET is hidden behind a new user-friendly web interface accessible from all devices with web-browsers. The web interface allows viewing of the current measurement results, editing settings and downloading measurement data from multiple noise & vibration monitoring stations

### Connection to SvanNET

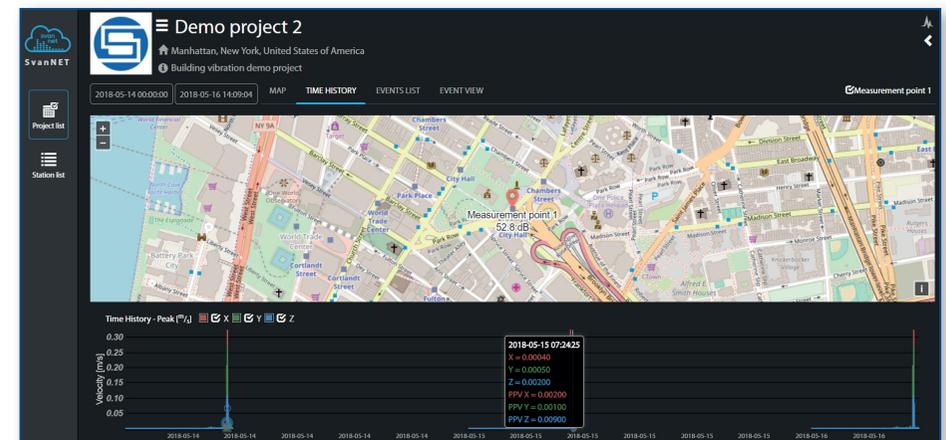
1) Successful connection to SvanNET is indicated by an icon on a SVAN 958A display:



2) To access SvanNET, log in to your account at:  
<https://www.svanet.com/panel-login.php>



3) Once logged in you can use the web interface to manage the monitoring station:

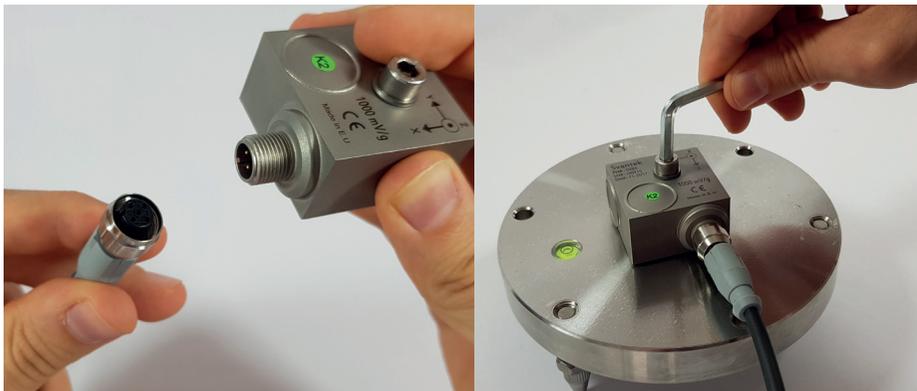


## Assembling the hardware

1) The system consists of 2 carrying cases. Before use check the serial numbers on labels located on the side of both cases and ensure they are a set.



2) Open the case with accessories and take out the SV 207B accelerometer kit. Firmly connect the SC 278 cable to the SV 84 accelerometer and mount it on the SA 207 metal base using the hex tool provided in the kit.



3) For direct connection to the building wall use the mounting hole of SV 84 accelerometer.



4) To connect the microphone extension cable start by lining up mark on the plug and INPUT 1-3 socket, then lock the connector by turning the ring clockwise (only the ring close to the socket will rotate).



5) Connect the power supply cable to the DC Supply socket in the same way.



6) 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.



## Air pressure compensation valve

Each case monitoring system is equipped with an air pressure compensation valve that must be closed when station is used outdoors, otherwise the system is not sealed against moisture ingress. The lower pressure inside the case may cause difficulty when opening the lid. In such cases the relief valve needs to be turned slightly counter clockwise before opening the case lid. The valve is located at the front of the case.



**Close the valve before you leave**



## SB 271 Solar Panel (option) or SB 272 External Battery (option)

In case AC mains powering is not available, the battery life of the SV 258 Pro can be extended either with use of SB 271 solar panel or SB 272 external battery pack.

The SB 271 solar panel (40 W, 17.5 V DC) extends the working time of the monitoring station. The SB 271 solar panel does not require additional batteries or external controllers.

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

The SB 272 battery pack capacity of 33 Ah enables twice the operating time of the monitoring station in comparison to the built in battery pack.

A cable with military connectors for connection between SV 258 PRO and solar panel or external battery is provided. The SB 272 is rechargeable with a SB 273 indoor charger.

To connect the solar panel or the external battery use the 4-pin socket marked as DC supply on the SV 258 Pro case. Once connected, the SV 258 Pro will recognize the external powering source automatically.



It is advised to charge the batteries of SV 258 PRO and SB 272 before going on site. Each unit has its own charger: SB 270 is a waterproof charger for SV 258 PRO, SB 273 is an indoor charger for SB 272.

## SP 272 Alarm Lamp (option)



SP 272 is an LED alarm lamp with a buzzer function activated by an internal switch. SP 272 is powered and activated from the SV 258 Pro station – switching on the lamp whenever the Event trigger condition is met.

To use Alarm Lamp simply connect the connector of SP 272 to the External Interface socket on the SV 258 PRO case:



Should your SVANTEK professional measurement equipment need to be returned for repair or for calibration, please contact a local Svantek dealer or the Svantek service office at the following number or contact via the Svantek web site.

Service Office: +48 (22) 51-88-320 or +48 (22) 51-88-322.  
Office hours are 9:00 a.m. to 5:00 p.m. Central European Time.  
-E-mail at [office@svantek.com](mailto:office@svantek.com)  
-Internet at [www.svantek.com](http://www.svantek.com)  
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