

SOLARIO manual

Solario Owners Instructions

The Solario is an acoustic variometer, which is powered through a buffered solar cell (no batteries). Therefore it is an optimum reserve variometer or together with an altimeter watch a low cost reliable minimum instrumentation. Thanks to the usage of newest components the power consumption is so low that solar powering is possible. All these features at a size of a match box.

Solario user instructions:

Although it is very simple, we want to give the user some hints:

- 1.) Give the Solario as much as possible sunshine. Hanglider pilots should put it in the sun, before they start building their glider together. Paraglider pilots put it in the sun, before they unpack their paraglider. Also the time before thermal becomes active, should be used as charge time. At 100% sun performance a complete discharged Solario works after only 45 seconds. This time could be higher when it is cloudy.
- 2.) Turn the Solario on about 1 minute before you take off. This makes it immediately after take off full sensitive. In general it needs for warm up about 30-60 seconds.
- 3.) If the Solario acoustic doesn't work after pushing the on button, the sunlight is not sufficient. Turn it off and lay it into the sun.
- 4.) To inform the user that sunlight is not sufficient, the Solario starts about 1 minute before automatic shutdown with "wild" acoustic. Then it should be turned off to keep the remaining energy in the buffer condensator. You can also recognize this point by putting your hand over the solar cell. In general the instrument is not sensitive to any change in light during normal operation. 1 minute before hardware switchoff the instrument becomes sensitive to changes in light.
- 5.) Turn it off after usage. This will reduce charge time the next time you turn it on.

Solario technical details :

Primary design goal was that the Solario will always operate, when it is bright enough to fly thermal. For using sunset thermal with cloudy skies and sun behind the next mountain a buffer condensator is build in. The solar cell delivers up to 40 times more current than needed at 100% sunshine. This current charges the internal buffer condensator, which gives his energy back in the evening. A fully charged buffer condensator allows up to 45 minutes operation at darkness.

Sufficient light should be outside houses. For demonstration purposes inside of buildings, charge the Solario at a lamp for about 1 minute (turned off).

After turnon we hear the descent acoustic rising. This tone will turn off between 10 and 60 seconds, depending on the selected sink rate at the rotary switch at the backside of the instrument. This is caused by internal charging. If this internal charging is ready, the Solario has full sensitivity for rising movements. So if you want to show somebody, how sensitive your Solario is for rising movements, you should wait about 1 minute after turn on.

Solario mounting:

The Solario should be attached to the glue point. The glue point should be mounted at your helmet near your ears. Additionally it should be secured by the line. Paraglider pilots could it also attach at their harness or risers of the glider.

Solario operating modes:

Beside the On/Off button there is a rotary switch at the backside of the instrument. There you can configure up to 12 different operating modes the following table shows the different functionality. This table is also printed at the backside of the Solario.

You can select, if the descent tone starts

- a.) immediately
- b.) at about 1.0 m/s (sink rate of your glider)
- c.) at about 3.0 m/s (sink alarm 1)
- d.) or at ca 3.5 m/s (sink alarm 2).

The volume of the instrument is configurable in 3 steps.: rotary switch

rotary switch	loudness	sink tone	
0	small	immediately	1.2 V
1	small	1 m/s	1.2 V
2	small	3 m/s	1.2 V
3	small	3.5 m/s	1.2V
4	medium	sofort	2.5V
5	medium	1 m/s	2.5V
6	medium	3 m/s	2.5V
7	medium	3.5 m/s	2.5V
8	loud	immediately	2.7 bis 3.7 V
9	loud	1 m/s	2.7 bis 3.7 V
A	loud	3 m/s	2.7 bis 3.7V
B	loud	3.5 m/s	2.7 bis 3.7 V
C	extra loud	immediately	2.7 bis 5V
D	extra loud	1 m/s	2.7 bis 5V
E	extra loud	3 m/s	2.7 bis 5V
F	extra loud	3.5 m/s	2.7 bis 5V

Technical data:

- buffer time with full charged condensator: 45 minutes
- charge time at 100% sunlight until it operates:: about 45 seconds
- temperature compensated
- frequency and interval modulated acoustic
- size: 53 x 37 x 19 mm (ca. match box size)
- operating altitude: 450 to 1100 mBar, that is about 20000 feet.

technical data could change.