VISO II Manual

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VISO II is a trademark of Larsen & Brusgaard, Denmark.

Larsen & Brusgaard operates a policy of continuous development.
Therefore, we reserve the right to make changes and improvements to any of the products described in this guide without prior notice.

$C\epsilon$

WARNING!

FAILURE TO FOLLOW ALL WARNINGS, INSTRUCTIONS, AND REQUIRED PROCEDURES MAY RESULT IN SERIOUS INJURY AND DEATH.

Always ensure your altimeter is adjusted to zero prior to jumping to account for any changes in barometric pressure.

Altimeters may give erroneous readings if you are tumbling or the altimeter is in a burble (wake), such as when sit flying or sky surfing. Chest mount altimeters are more vulnerable to this problem. If you are in doubt about how this limitation affects your skydiving, consult a licensed instructor.

DO NOT use this equipment unless you are on, or have passed an approved skydiving course.

Use the VISO II™ at your own risk.

CONTENTS

Congratulations on purchasing your new VISO II!
The VISO II design is based upon the latest findings in microcomputer technology and freefall parameters. Please read ALL of the instructions prior to actual skydiving use.

The VISO II comprises three instruments:

1 Digital Alti-Meter
Stores detailed altitude information about the last jump for later review

2 Digital Speed-Meter
Stores detailed speed information about the last jump for later review

3 Jump Counter
Electronic logbook, storing and displaying information about the last 200 jumps.
- Can be used as an aid to track the amount of jumps performed on a rig.
- Can be reset at any time, but time and date for the last reset remains stored and cannot be erased.

4. Daily Jump Counter
- Displays number of jumps completed on last date and/or 9 other jump dates.

Features
• Digital Alti-Meter or Speed-Meter
• Electroluminescent backlight for night jumping. Can remain ON for several hours
• Automatic calibration to local elevation
• LCD screen for easy and intuitive operation and information review
• Logbook with playback of altitude/speed profile for the last jump
• Operational at sub-zero temperatures
• Switches OFF automatically after 14 hours

Software & functions
• Stores up to 10 minutes of profile data from last jump
  Displays Alti-Meter and Speed-Meter details from exit to landing

• Records and displays jump information about the last 200 jumps including exit altitude, deployment altitude, freefall time, max. speed in freefall and max. speed under canopy

• Choice of readings in feet or meter and mph or kmh

If you have any questions please call, fax or e-mail us.
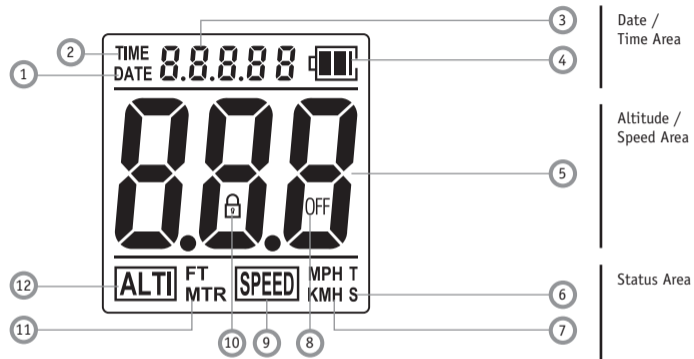LARSEN & BRUSGAARD

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Description

1. ⌃ UP button

2. ● Middle button

3. ⌄ Down button

4. LCD display

5. Reset button (on rear side)

Display

The display has the following characteristics by default (normal usage):

Date / Time Area

1 Date icon

2 Time icon

3 Additional information, displaying:

  - current date/time

  - time in profile when in Profile Area

  - date/time when in Logbook Area

4 Battery status

  Battery Power Level icon – indicates the remaining battery capacity

Altitude / Speed Area

5 Main information, displaying:

  - altitude when VISO II is set to Alti-Meter mode

  - speed when VISO II is set to Speed-Meter mode

  - detailed profile information when in Profile Area

  - logbook information when in Logbook Area

  - various setup information

Status Area

6 True Airspeed (TAS) / Skydiver's Airspeed (SAS) status

7 Mph / Kmh status

8 OFF icon - Used to manually power OFF the VISO II

9 Speed-Meter indicator when VISO II is set to Speed-Meter mode

10 Padlock icon Used to indicate and control entrance to ACCESS mode

11 Feet/Meter status

**12** Altimeter indicator when VISO II is set to Alti-Meter mode

Power ON

The VISO II has been powered OFF prior to shipping from our factory. To turn the power ON, press and hold any key until the VISO II beeps, then release the button.
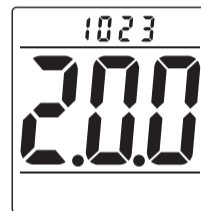
Auto OFF

The VISO II automatically switches OFF 14 hours after the last jump or 14 hours after the last pressing of any key, whichever comes last.
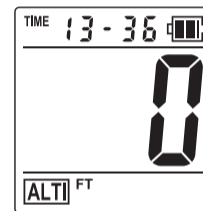
The VISO II runs a self-test and displays all icons
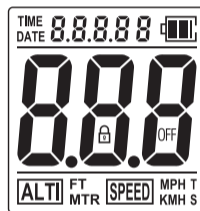
It then displays the firmware version number together with a factory reference number...

...and switches to a screen configuration referred to as the "Main Window".
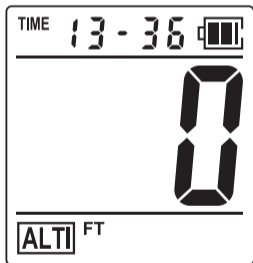

Main Window

This represents the starting point for all further actions and subsequent displays.

Explanation
The Main Window is the default window which displays current time, battery status and either Altitude or Speed.

Alti-Meter Mode

When the VISO II is set to Alti-Meter mode, the "ALTI" and "Feet/Meter" icons are ON.
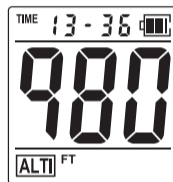The VISO II will display the altitude during climb, in freefall and under canopy.
The date/time information switches OFF during freefall and under canopy.
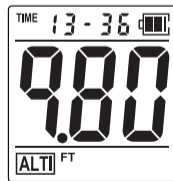
(When preset, press ⌃ *to view the current date).*

Alti-Meter Displays
In Alti-Meter mode the LCD may show 3 different displays, depending on what altitude value is shown.

If the altitude is below 1000 the altitude is displayed as normal. Altitude resolution is in 10 feet (5 meter) increments.
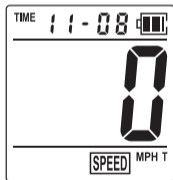
If the altitude is 1000-9999, the altitude is displayed as tens of feet or meter. Altitude resolution is in 10 feet (10 meter) increments

If the altitude is 10000 or higher, the altitude is displayed as hundreds of feet or meter. Altitude resolution is in 100 feet (100 meter) increments.
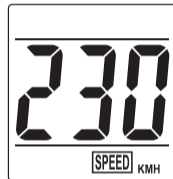
Speed-Meter Mode
When the VISO II is set to Speed-Meter mode, the SPEED, "Feet/Meter", "Mph/Kmh" and "TAS/SAS" icons are ON.

The VISO II will display the climb rate/speed during climb, in freefall and under canopy.

The date/time information switches OFF during freefall and under canopy.

Speed-Meter Display during the freefall
Speed resolution is in 1 Mph (1 Kmh) increments.
Important Notice about Speed Recordings
Experience has shown that when mounting the VISO II on the hand or belly, different air pressures induced by hand or body movements may result in incorrect recordings of speeds.

Road Map

It is recommended that you first familiarize yourself with the **VISO II ROAD MAP** which is a very helpful tool when using the VISO II for the first time. The **ROAD MAP** comprises four areas:

• Backlight Setup Area (see page 39)
• Profile Area (see page 51)
• Setup Area (see page 19)
• Logbook Area (see page 43)

VISO II Settings

The VISO II can be customised to your personal settings. Your settings will be stored and recalled also after replacing batteries. When you first get the VISO II, we recommend you to go through the **SETUP Selector** to customise the VISO II settings. SETUP Selector

In the Setup Area the following options can be selected:

• Alti-Meter/Speed-Meter
• Feet/Meter when set to Alti-Meter
• Mph/Kmh when set to Speed-Meter
• Altitude offset
• Dive Type
• True Airspeed (TAS) / Skydiver's Airspeed (SAS)
• Set current year
• Set current date
• Set current time

• Preset jump counter
• Reset jump counter
• Turn the VISO II OFF
• Padlock window

To enter the Setup Area
Perform ACCESS on ■ or ▼ . Then hold ■ > 5 seconds

Performing ACCESS:
1 Press ■ or ▼ and release quickly. The padlock icon turns ON and OFF
2 When the padlock icon turns ON again, immediately press the same button and
   keep it pressed (padlock turns OFF)
3 When the padlock icon turns ON again, release immediately

General note:
The VISO II goes out of ACCESS and back to the Main Window if no button has been
pressed within 15 sec.
ALL functions (except Power ON) can be performed ONLY when the VISO II is in ACCESS mode.

To leave the Setup Area
Wait until the display times out, or press ■ repeatedly until the Padlock window
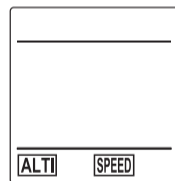shows. Then press ▲ or ▼ to exit.

Padlock Window

🔒
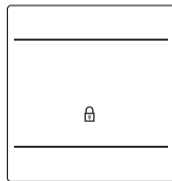
Alti-Meter / Speed-Meter Selector

Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • Mph/Kmh when set to Speed-Meter • Altitude offset • Dive Type • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • Set current year • Set current date • Set current time • Preset jump counter • Reset jump counter • Turn the VISO II OFF • Padlock window

Alti-Meter / Speed-Meter

The VISO II can be set to function **either** as an Alti-Meter **or** as a Speed-Meter.

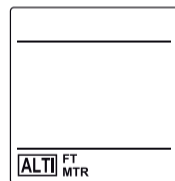Press ⌃ or ⌄ to toggle between Alti-Meter or Speed-Meter mode.

The active selection flashes.

Press ■ to save setting and enter the **Feet/Meter** selector.

ALTI   SPEED

Feet/Meter Selector

Alti-Meter/Speed-Meter • **Feet/Meter when set to Alti-Meter** • Mph/Kmh when set to Speed-Meter • Altitude offset • Dive Type • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • Set current year • Set current date • Set current time • Preset jump counter • Reset jump counter • Turn the VISO II OFF • Padlock window

Feet/Meter

Press ⌃ or ⌄ to toggle between Feet/Meter.
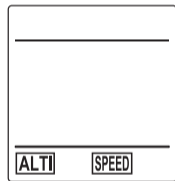
The active selection flashes.

Press ■ to save setting and enter the **Mph/Kmh** selector.

Note: Jump data is continuously stored in both feet and meter. At any time stored information may be displayed in either unit of measurement by selecting the respective mode.

ALTI FT MTR

Mph/Kmh Selector

Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • **Mph/Kmh when set to Speed-Meter** • Altitude offset • Dive Type • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • Set current year • Set current date • Set current time • Preset jump counter • Reset jump counter • Turn the VISO II OFF • Padlock window

Mph/Kmh

Press ⏶ or ⏷ to toggle between Mph/Kmh.
The active selection flashes.
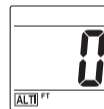Press ▪ to save setting and enter **Altitude Offset.**

Note: Jump data is continuously stored in both Mph and Kmh. At any time stored information may be displayed in either unit of measurement by selecting the respective mode.

Altitude Offset

Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • Mph/Kmh when set to Speed-Meter • **Altitude offset** • Dive Type • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • Set current year • Set current date • Set current time • Preset jump counter • Reset jump counter • Turn the VISO II OFF • Padlock window

Explanation

If the DZ landing elevation differs from that of the aircraft take off elevation, offset the VISO II prior to entering the aircraft as follows:

Altitude Offset
Press and hold ⏶ or ⏷ to offset the current altitude.
Press ▪ to save setting and enter the **Dive Type** selector.

Note: When performing altitude offset, the VISO II enters Jump Mode and the altitude offset will be retained for 14 hours, if no jump is made. After 14 hours the VISO II recalibrates to the field elevation where it is currently located. The selected Offset Altitude remains displayed in the Main Window after VISO II goes out of ACCESS. When offsetting to a negative altitude the display will flash between minus (-) and the selected negative altitude. The altitude offset is not retained when the VISO II is powered OFF.
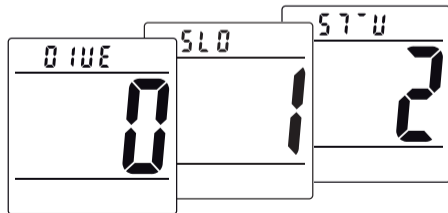
Dive Type Selector

Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • Mph/Kmh when set to Speed-Meter • Altitude offset • **Dive Type** • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • Set current year • Set current date • Set current time • Preset jump counter • Reset jump counter • Turn the VISO II OFF • Padlock window

Explanation

The Dive Type mode can be used to change parameters when the VISO II detects freefall exit and canopy deployment.

Dive Type

Press ⌃ to scroll forward through the dive type list.
Press ⌄ to scroll backward through the dive type list.
Press ▪ to save setting and enter the **TAS/SAS** Selector.

0 = ---- (blank, factory default parameters)
1 = SLO (Slow) *
2 = STU (Student) **

* Dive Type, 1: SLO (Slow)

In SLO the exit fall rate and deployment calculation parameters are changed to fit very slow falling types of dives, like wing suit dives, etc.

** Dive Type, 2: STU (Student)

In STU the descent rate parameters are changed to allow detection of short freefalls, (2 sec).

True Airspeed (TAS) / Skydiver's Airspeed (SAS)
Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • Mph/Kmh when set to Speed-Meter • Altitude offset • Dive Type • **True Airspeed (TAS) / Skydiver's Airspeed (SAS)** • Set current year • Set current date • Set current time • Preset jump counter • Reset jump counter • Turn the VISO II OFF • Padlock window
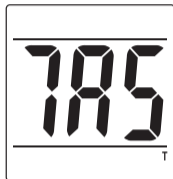
Explanation
True Airspeed (TAS) and **Skydiver's Airspeed (SAS)** are two methods of calculating the airspeed of a moving/flying/falling object.

TAS is a term used in aviation: It is the speed of an object relative to the surrounding air, regardless of the altitude.

SAS is a new concept developed by LARSEN & BRUSGAARD: **SAS** is the speed of a skydiver calculated from measurements of air pressure and temperature and converted to a fixed air pressure (875.3 mb) and a fixed temperature (+7.080C) which corresponds to 4,000 feet ASL.

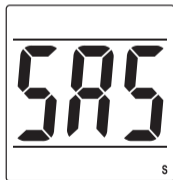**True Airspeed (TAS) / Skydiver's Airspeed (SAS)**

Press ▲ or ▼ to toggle between TAS and SAS.
The active selection flashes.
Press ■ to save setting and enter the **Set Current Year**
selector.

NOTE: Jump data is continuously stored in both TAS and SAS.
Stored information may be displayed in either unit of measure-
ment by selecting the respective mode.

Recommendation:
When using the VISO II as a Speed-Meter in a big way base it
is recommended to set it to SAS.
SAS will show the same speed throughout the dive (at the

same body position), whereas TAS will show a different speed throughout the dive
(the same body position, different air density).

Below are some recommendations and numbers for SAS:

A good base speed should be: 110-115 mph.
A high base speed should be: 120-125 mph (tendency to wobble when docking).
A slow base speed should be: 100-105 mph (jumpers start to go low).

See separate section on page 61 for more information about TAS and SAS.

Set Current Year Selector

Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • Mph/Kmh when set to Speed-Meter • Altitude offset • Dive Type • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • **Set current year** • Set current date • Set current time • Preset jump counter • Reset jump counter • Turn the VISO II OFF • Padlock window
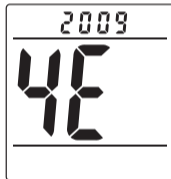
Set Current Year

Press ⌃ to increase year.

Press ⌄ to decrease year.

Press ▪ to save setting and enter the **Set Current Date** selector.

Set Current Date Selector

Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • Mph/Kmh when set to Speed-Meter • Altitude offset • Dive Type • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • Set current year • **Set current date** • Set current time • Preset jump counter • Reset jump counter • Turn the VISO II OFF • Padlock window
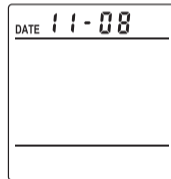
Set Current Date

Press ⌃ to increase date.

Press ⌄ to decrease date.

Press ▪ to save setting and enter the **Set Current Time** selector.

Note: *Date format is MM:DD.*
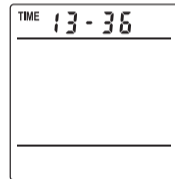
Set Current Time Selector
Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • Mph/Kmh when set to Speed-Meter • Altitude offset • Dive Type • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • Set current year • Set current date • **Set current time** • Preset jump counter • Reset jump counter • Turn the VISO II OFF • Padlock window

Set Current Time
Press ⌃ to increase time.
Press ⌄ to decrease time.
Press ▪ to save setting and enter the **Preset Jump Counter** selector.

Note: Time format is HH:MM and in 24-hour format

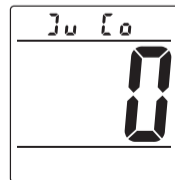**Preset Jump Counter Selector**
Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • Mph/Kmh when set to Speed-Meter • Altitude offset • Dive Type • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • Set current year • Set current date • Set current time • **Preset jump counter** • Reset jump counter • Turn the VISO II OFF • Padlock window

Explanation
The VISO II can store up to 200 jumps in the logbook and numbers them starting from the jump number that you preset here. The counter can be used to keep track on the number of jumps and it can be reset at any time, but time and date for the last reset remains stored and cannot be erased.

Preset Jump Counter
Press ⌃ to increase the jump counter.
Press ⌄ to decrease the jump counter.
Press ▪ to save setting and enter the **Reset Jump Counter** selector.

Reset Jump Counter Selector

Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • Mph/Kmh when set to Speed-Meter • Altitude offset • Dive Type • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • Set current year • Set current date • Set current time • Preset jump counter • **Reset jump counter** • Turn the VISO II OFF • Padlock window
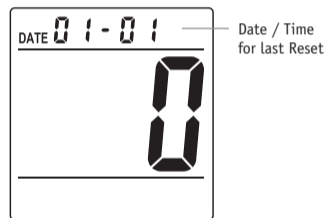
DATE 01-01 — Date / Time for last Reset

0

Reset Jump Counter

Press ⌃ AND ⌄ at the same time for more then 10 seconds to reset the Jump Counter and delete the entire logbook.

Date and Time for the last reset is displayed together with the number of resets which have been made.

Press ▪ to enter the **Turn VISO II OFF** selector

Note: *Date, Time and the number of resets which have been made are stored and there is no way to clear it.* ***There is no way to restore the logbook information!***

Turn VISO II OFF Selector

Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • Mph/Kmh when set to Speed-Meter • Altitude offset • Dive Type • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • Set current year • Set current date • Set current time • Preset jump counter • Reset jump counter • **Turn the VISO II OFF** • Padlock window

OFF
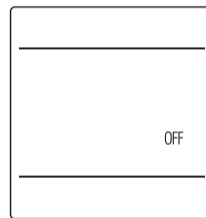
Turn VISO II OFF

Press ⌃ AND ⌄ at the same time and hold until the VISO II turns OFF.

Or, press ▪ to enter the **Padlock window.**

We recommend that you switch OFF the VISO II when

traveling on commercial flights and when driving in mountainous areas.

Note: *When switched OFF the VISO II cannot be used for jumping.*

Customer settings are not lost when switched OFF.

To power the VISO II ON, see page 12.

Padlock Window

Alti-Meter/Speed-Meter • Feet/Meter when set to Alti-Meter • Mph/Kmh when set to Speed-Meter • Altitude offset • Dive Type • True Airspeed (TAS)/ Skydiver's Airspeed (SAS) • Set current year • Set current date • Set current time • Preset jump counter • Reset jump counter • Turn the VISO II OFF• **Padlock window**
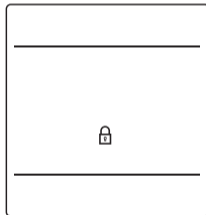
Padlock Window

Press 🔼 or 🔽 to leave the Setup Area and return to the Main Window.

Or, press ⬛ to return to Alti-Meter/Speed-Meter selector.

Backlight Setup Area

Press and hold 🔼 for 2 seconds.
Backlight turns ON.
Press and hold 🔼 for 2 seconds.
Backlight turns OFF.
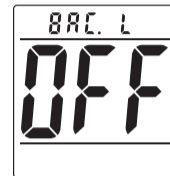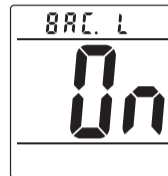
Note: Backlight is specifically for night jumps.

*Note: If the backlight is turned ON while the VISO II is **not** in Jump Mode, the backlight will automatically turn OFF after 30 minutes, if still not in Jump Mode.*

*If the backlight is turned ON while the VISO II **is** in Jump Mode, the backlight will remain ON until the unit goes out of Jump Mode.*

(Jump Mode see page 41)

Zeroing the VISO II

The VISO II continuously adjusts itself to the local elevation and displays 0 FT (MT) in the Altitude/Speed area. If the Altitude/Speed area does not display "0" prior to jumping, the unit has not yet adjusted itself to the local elevation and it must be manually zeroed.

To manually zero the unit either perform reset or turn the unit OFF and then ON.

Jump Mode

Shortly after takeoff the VISO II switches to Jump Mode and displays the altitude or speed in the Altitude/Speed area.

- When the VISO II is set to Alti-Meter, the ALTI and Feet/Meter icons are ON and it will display the altitude during climb, during the freefall and under canopy.
- When the VISO II is set to Speed-Meter, the SPEED, Mph/Kmh and TAS/SAS icons are ON and it will display the speed during climb, during the freefall and under canopy.

Daily Jump Counter

Explanation: The VISO II can display the number of jumps made on last date and on 9 other jump dates.

In the Main Window, press and hold ■ for 2 seconds.
Unit displays number of jumps completed on last date.

Scroll, using ▲ and ▼ to display number of jumps completed on other jump dates.

Maximum 10 dates are stored.

Jump Data

After landing the jump data can be displayed on the LCD by accessing the **Logbook Area** and **Profile Area**.

Logbook Area
Explanation: The logbook can store up to 200 jumps, and be reset at any time. It is not possible to delete a single jump.

Perform ACCESS on ▼ to enter the **Logbook Area** (Performing ACCESS, see page 20)

In the **Logbook Area** press ■ to display,
- ■ Jump number
- ■ Exit altitude
- ■ Deployment altitude
- ■ Freefall time
- ■ Max. speed in freefall
- ■ Max. speed under canopy
- ■ Padlock window

Display when logbook is empty
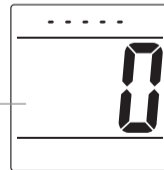
Jump Number

Jump number • Exit altitude • Deployment altitude • Freefall time • Max. speed in freefall • Max. speed under canopy • Padlock window

Jump Number

TIME 13-36

3

Toggles between Date/Time
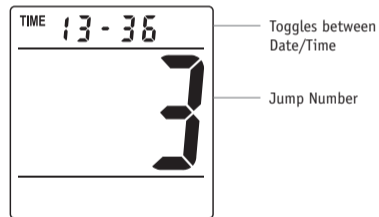
Jump Number

Press ⌃ or ⌄ to scroll in the jumps. Date/Time information will switch accordingly in the "Date/Time Area". Press ▪ to go to **Exit Altitude** information.

Exit Altitude

Jump number • **Exit altitud**e • Deployment altitude • Freefall time • Max. speed in freefall • Max. speed under canopy • Padlock window

Exit Altitude

Exit Symbol   Jump Number

7   3

20.0

ALTI FT

Press ⌃ or ⌄ to scroll in Exit Altitudes.
Press ▪ to go to **Deployment Altitude** information.

Note: The LCD may show 3 different displays, depending on what altitude value is shown. See page 15.

Deployment Altitude

Jump number • Exit altitude • **Deployment altitude** • Freefall time • Max. speed in freefall • Max. speed under canopy • Padlock window

Deployment Altitude

Deployment Symbol   Jump Number
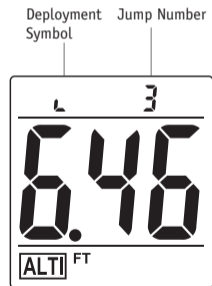
Press △ or ▽ to scroll in Deployment Altitudes.

Press ■ to go to **Freefall Time** information.

Note: The LCD may show 3 different displays, depending on what altitude value is shown. See page 15.

Freefall Time

Jump number • Exit altitude • Deployment altitude • **Freefall time** • Max. speed in freefall • Max. speed under canopy • Padlock window

Freefall Time

Time   Jump Number

Press △ or ▽ to scroll in Freefall Times.

Press ■ to go to **Max Speed in Freefall** information.

Max. Speed in Freefall

Jump number • Exit altitude • Deployment altitude • Freefall time • **Max. speed in freefall** • Max. speed under canopy • Padlock window

Max. Speed in Freefall

Max. Freefall   Jump Number
Speed Symbol

SPEED   MPH T ── TAS/SAS
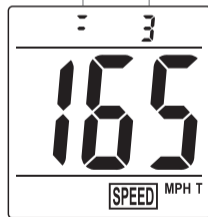
Press ⌃ or ⌄ to scroll in Max Speed in Freefall.
Press ■ to go to **Max Speed under Canopy**
information.

Note: In the lower right hand corner of the display a "T" or an "S" will indicate whether the VISO II is set to "TAS" or "SAS".

For more information about TAS and SAS, see page 61.

Max. Speed under Canopy

Jump number • Exit altitude • Deployment altitude • Freefall time • Max. speed in freefall • **Max. speed under canopy** • Padlock window

Max. Speed under Canopy

Max. Freefall   Jump Number
Speed Symbol

SPEED   MPH T ── TAS/SAS

Press ⌃ or ⌄ to scroll in Max Speed under Canopy.
Press ■ to go to the **Padlock window**.

Padlock Window
Jump number • Exit altitude • Deployment altitude • Freefall time • Max. speed in freefall • Max. speed under canopy • **Padlock window**
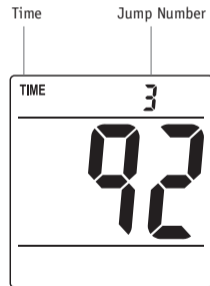
Padlock Window
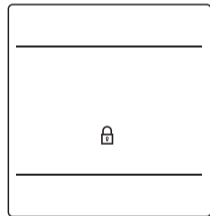
Press ⏶ or ⏷ to leave the Logbook Area and return to the Main Window, or press ▪ to **return to Log-book Area**.

Explanation
The **Profile Area** features playback of altitude/speed profile for the last jump.

Note: Speed information is available in playback mode, after freefall has lasted w6 sec.

Perform ACCESS on ▪ to enter the **Profile Area**.
(Performing ACCESS, see page 20)

In the **Profile Area** press ▪ to display,

▪ Altitude playback information   ▪ Padlock window
▪ Speed playback information
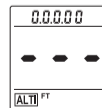
Display when Profile Area is empty (no jumps stored)

Playback Altitude Versus Time
Playback altitude versus time • Playback speed versus time • Padlock Window

Playback Altitude Versus Time

Time in profile

```
00-28
1.28
ALTI FT
```

Scroll

Press ⌃ to playback the altitude profile at ¼ speed
Press ⌃ twice to playback in real time
Press ⌃ three times to playback at 2x speed
Press ⌃ four times to playback at 5x speed
Press ⌄ to playback the altitude profile in reverse at ¼ speed
Press ⌄ twice to playback in reverse in real time
Press ⌄ three times to playback in reverse at 2x speed
Press ⌄ four times to playback in reverse at 5x speed
Press ■ to stop playback
Press ⌃ or ⌄ to resume playback or press ■ to go to
Playback Speed Versus Time.

Playback Speed Versus Time
Playback altitude versus time • **Playback speed versus time** • Padlock Window

Playback Speed Versus Time

Time in profile

```
00-28
234
SPEED MPH T
```

Scroll
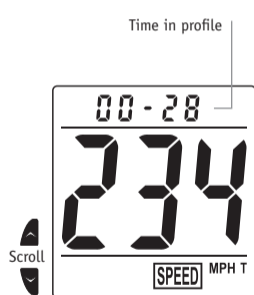
Press ⌃ to playback the speed profile at ¼ speed
Press ⌃ twice to playback in real time
Press ⌃ three times to playback at 2x speed
Press ⌃ four times to playback at 5x speed
Press ⌄ to playback the speed profile in reverse at ¼ speed
Press ⌄ twice to playback in reverse in real time
Press ⌄ three times to playback in reverse at 2x speed
Press ⌄ four times to playback in reverse at 5x speed
Press ■ to stop playback
Press ⌃ or ⌄ to resume playback or press ■ to go to
Padlock window.

Important Notice about Speed Recordings
Experience has shown that when mounting the VISO II on the hand or belly, different air pressures induced by hand or body movements may result in incorrect recordings of speeds. For more information about using the VISO II as a Speed-Meter, see page ?.

Padlock Window

Playback altitude versus time • Playback speed versus time • **Padlock Window**
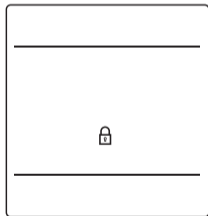
Padlock Window
Press ▲ or ▼ to leave the **Profile Area** to return to the Main Window or press ■ to return to the **Profile Area.**

Air filter
The VISO II is water resistant.
The Air Filter is the white circular part mounted on the side of the unit. If it becomes wet (after a splash in the swoop pond) then let the VISO II dry in a warm place for 48 hours.
Note: The Air Filter must be replaced if jumping is resumed quickly or if the VISO II has been submerged into water.

Air Filter removal tooling kit is an accessory which can be purchased separately.

Resetting the VISO II

Press a paperclip into the tiny hole on the rear side of the unit and release. The unit restarts.

After battery replacement or resetting, the battery system requires 2 minutes to calibrate itself before displaying the correct status.
While calibrating, the battery icon toggles between full and low.

Note: Reset the unit after battery replacement, when troubleshooting and when verifying software version number.

Battery Replacement

Carefully remove screw from battery cover and remove batteries. Install new batteries using the correct polarity. Use only CR-2325.

After battery replacement or resetting, the battery system requires 2 minutes to calibrate itself before showing the correct status.
While calibrating, the battery icon toggles between full and low.

Note: Customer settings are not lost when removing batteries. However, the built-in clock may need to be reset to the current time.

Battery Status

Full capacity: Symbol shows two black bars inside the battery icon.

Half capacity: Symbol shows one black bar inside the battery icon.

Low capacity: Symbol shows no black bars, just an "empty" battery icon.
Batteries should be replaced as soon as possible.
The "**Low bat**" flashes once every 15 sec.

Caution: Do not make night jumps at sub zero temperatures when bat. shows low capacity.

Empty batteries: The battery icon flashes. Replace batteries immediately.

Firmware Version
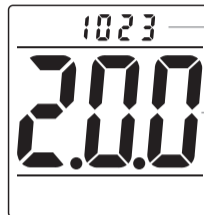
Factory reference number

Firmware Version

Perform reset or turn the unit OFF and then ON.
The VISO II runs a self-test and displays all icons.
The unit then displays the firmware version together with a factory reference number.

Trouble-shooting

When the VISO II detects a fault, an error ("ERR") symbol and trouble shooting numbers 2 to 5 and 100 are displayed in the upper part of the screen. At the same time the unit beeps every minute.

The "ERR" trouble shooting codes are as follows: ERR 2 (transducer defective), ERR 3 (transducer out of range), ERR 4 (crystal defective), ERR 5 (comm. error to flash), ERR 100 (flash defective). Remedy: Perform reset.

If the unit still does not function correctly even after replacing the batteries and performing reset, perform following: Press and hold ■ while resetting. The VISO II resets to factory settings and sounds three beeps. *Note: All logbook data are lost*

If the unit is still faulty, please contact your local dealer or
LARSEN & BRUSGAARD.

APPENDIX

TAS and SAS

Definitions
True Airspeed (TAS) and **Skydiver's Airspeed (SAS)** are two methods of calculating the airspeed of a moving/flying/falling object.
TAS is a term used in aviation: It is the speed of an object relative to the surrounding air, regardless of the altitude.
SAS is a new concept developed by LARSEN & BRUSGAARD: **SAS** is the speed of a skydiver calculated from measurements of air pressure and temperature and converted to a fixed air pressure (875.3 mb) and a fixed temperature (+7.080C) which corresponds to 4,000 feet ASL.

TAS. A skydiver's True Airspeed (TAS) relative to the ground changes as a function of the altitude (air pressure) and temperature which makes it difficult to compare fall-rates.

Example: A skydiver (in a fixed freefall position) who has a terminal fall rate of 62 meters/sec at 10,000 feet will have a terminal fall rate of 50 meters/sec at 3,000 feet.

It will be seen that the difference in altitude (air pressure) makes it difficult to compare the fall-rates when measured using TAS.

SAS. The SAS formula calculates airspeed (using the same metrics used with TAS) as though the complete skydive had been performed at a fixed air pressure and a fixed temperature which corresponds to 4,000 feet ASL. 4,000 feet is chosen as the reference altitude by LARSEN & BRUSGAARD since this is the average altitude at which the working time of a skydive is normally ended.

Conclusion

Using **SAS**, skydivers in any body position can express their vertical speed by a number (**SAS**). This number remains virtually constant regardless of altitude with little or no variance due to temperature differences and can be compared with the airspeeds of other skydivers.

This means that regardless of the elevation of the DZ you are jumping at, **SKYDIVER'S AIRSPEED (SAS)** will be the same for the same body position.

SAS is very useful when doing big formation skydiving. If using TAS, it will seem like the base is slowing down the fall rate during the entire skydive.

For information about using the VISO II as a Speed-Meter, see page 16.

SPECIFICATIONS

Mechanical

Dimensions:	81 x 69 x 23 mm (3 1/8" x 2 ¾" x 3/4")
Weight:	90 g (3.9 oz)
LCD area:	5.5 cm^2 (0.9 inch^2)

Logbook

Maximum jumps:	200
Logbook information:	Exit altitude
	Deployment altitude
	Freefall time
	Max. speed in freefall
	Max. speed under canopy
Tolerances:	Exit altitude: +/- 1.2%
	Deployment altitude: +/- 1.2%
	Freefall time: +/- 1 sec
	Speed (TAS/SAS): +/- 3 mph (+/- 5 kmh)

Profile Storage

Continued storage of last jump

Maximum logging time:	10 minutes
Sampling rate:	4/sec.
Maximum logging altitude:	39,999 feet (12,191 m)

Factory default settings

Mode	Alti-Meter
Feet / Meter:	Feet
Mph / Kmh:	Mph
TAS / SAS:	TAS
Type of Dive:	0
Date:	2009:01:01 (year, month, date)
Time:	12:00:00 (hours, minutes, seconds)

Other

Present altitude:	+/- 10 ft (5 meters)
Operating altitude:	0 to 40,000 ft (0 to 12,191 m)
Clock:	+/- 4 min/month
Operating Temperature Range:	-30C to +60C (-22F to +140F)
Altitude Offset Range:	- 9900 ft to +9900 ft
	-3000 meter to +3000 meter
Daily Jump Counter:	Max 10 dates
Battery type:	2 x CR 2325
Battery Life Time (at normal use):	approximately 2 years
L&B part no.:	205442
NATO Stock no.:	6605-22-613-6341

Warranty

The following conditions apply to the VISO II™ warranty:

If within 12 months of the purchase of VISO II™ a defect or damage is identified by faulty manufacture, LARSEN & BRUSGAARD will repair the unit at no cost to the end user.

To make a claim under this warranty, send the unit to an authorized dealer or directly to LARSEN & BRUSGAARD together with the dated purchase invoice or receipt.

The warranty becomes void if damage is caused by external circumstances or if the unit has been serviced or repaired by third parties unauthorized by our national agents or LARSEN & BRUSGAARD.

All further claims, especially for defects after skydiving accidents, are excluded. LARSEN & BRUSGAARD has no obligation to honor any extension of warranty granted by any national agent.

Waiver of Liability

The buyer and user of the VISO II™ indemnify the manufacturer and vendor from any liability for damage incurred before, during and after skydiving with the instrument.