

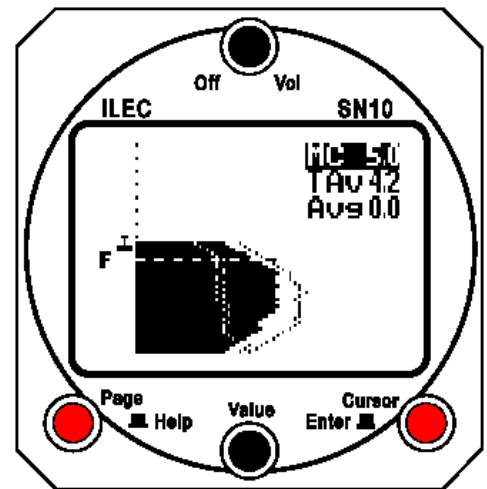
ILEC SN10 Flight Computer

combines the **latest Computer, Display and Friendly User Interface Technology** with the **ILEC's renowned Variometer and Sensors.**

Easy to use with integrated HELP - suitable for clubs as well as competition.

You will learn to use this instrument in 10 minutes or less!

- World-famous **ILEC Variometer Response**
- **Automatic Wind calculation** (direction and speed)
- **GPS input** from your GPS or Data-Logger
- **Easy Task Problem Solving** (Speed-Only or POST)
- **Built-in Database** of airfields and turning points
- **Easy Final glides** around turnpoints
- **Flight Recorder**, optional with comprehensive **Flight Analysis Software**
- Integrated **g-meter**
- **Exclusive Thermal Height-Band Display** (picture)
- Instant **on screen Help** for all information and settings
- Integral local-area network for **future options**
- RS-232 interface for easy **data transfer** to/from PC or GPS
- **Easy Software updates** using your PC (no factory service require)
- All ILEC products come with a **2years warranty**



Built for the Future ! With a built-in local area network and a powerful processor, the SN10 is expandable with external instruments, e.g. compass (in development), or other components to be announced in the future. Options include two-seater display, remote control units and 57mm circular meter for the vario indication.

The Most Important Features of the SN10

During the development of the **SN10** every effort was made to make the instrument very easy, almost intuitive, to use and to learn (learn by doing) ! The following text pursues two different aims: first it will show the future customer many of the advantages the SN10 offers, and second, it will demonstrate the user-friendly operation.

The SN10 is so easy to use, reading this small introduction allows meaningful use of the SN10. All important information is readily available. This improves in flight safety and enjoyment ! To use all the variety of possibilities the SN10 offers, we recommend a short look at the SN10 Manual.

Speed Scaling offers a quick and user-friendly way of changing values, quickly spinning the knobs enters large numbers with ease (much faster than buttons or toggles of other instruments). The spin-knobs have also a push button feature. Pressing the **Help** button shows for each display field a detailed help screen. The **Cursor** knob selects the field which can be changed with the **Value** knob, or for which help will be displayed when you press the Help button. The cursor position is shown by the highlighted field on the screen. The **Enter** button is rarely used, for example to start a timer.

The pages available in **Flight-Mode** of the SN10 will be shown in the following. Additional pages available in **Setup-Mode** concern the settings of the **SN10** (e.g. the indication of the different installed units, audio settings); these are shown in the **SN10 Manual**.

For use at simple final glides or for final glides over an obstacle,

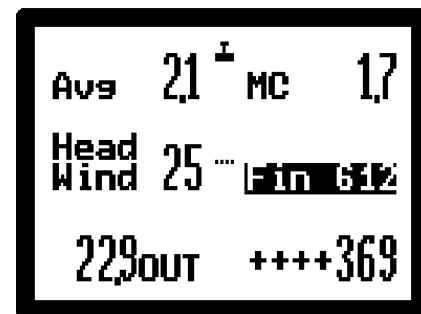
Simple Final Glide Page:

Rapidly spinning the **Page knob** clockwise displays the **Simple Final Glide Page**. This contains all essential information concerning a final glide to an airfield or over an obstacle, but does not use the navigation and task planning features of the SN10. For the final glide of a task including final glide around turnpoints, the **Status Page** should be used.

The bottom line shows the distance to the finish (**out**) and the total energy height above (+++) or below (---) glideslope. When the glider symbol in the middle of the page is above the dashed line in the page center you are above glideslope.

Setting the Cursor on the field **Fin** and pressing the **Help** button shows the screen displayed beside, as an example of using the **Help** function.

Of course the altimeter setting (QNH-value) of the SN10 on the Status Page must be right!



Task planning, before take off as well as in the air for optimization or changing the task is very helpful!

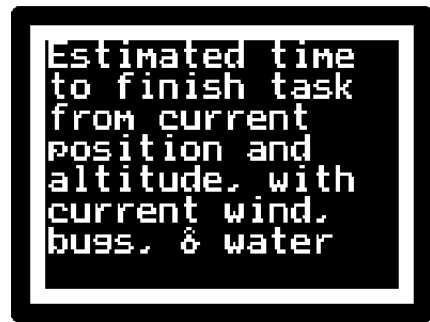
the Task Page:

At the left side of the page the start and turn points are shown. The destination is displayed at the top of the right side. Enter a waypoint simply by placing the **Cursor** at the desired position and turning the **Value** knob until the desired waypoint is displayed from the **site library**. For every region a suitable library is loaded into the SN10 !

The SN10 calculates the estimated time of flight (**ETF**). The On Screen Help for this field is displayed beside. **ETF** takes into account the wind (from the **Status Page**) and the MacCready setting (**MC**) as well as the other settings concerning the glider. Also displayed is the time remaining for the task, **Rema**. This could be the time remaining for the POST or Speed Only as well as the end of the thermals. **Dis** shows the distance remaining.

The glider symbol again indicates whether you are above or below glide slope to complete the task.

The support and development of the turnpoint and airfield library is easily performed using the ILEC flight analysis software (StrePla).



Choosing the best thermal height band is quick and easy using the

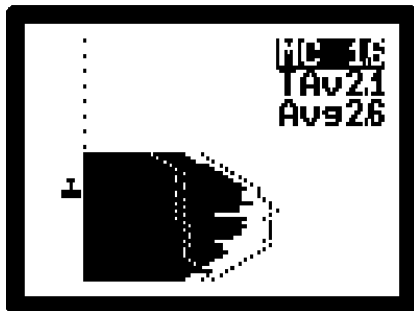
Height Band Graph:

High average speeds require not only excellent routing and locating of thermals, but also the choice of the best thermal height band and leaving thermals at the optimum time !

That's why this page displays graphically the last three thermals, and the pilot can easily detect the height band offering the best climb rates !

To choose the proper MacCready setting (**MC**) we show on this page not only the average climb rate (**Avg**), but also the thermal average (**TA_v**). **TA_v** is the climb rate over the whole thermal since switching from the cruise into the climb mode. The thermal average is normally a good estimate for the **MC** setting !

The glider symbol at left shows your current altitude with respect to the thermal heightband.



All important information and settings at one glance,

the Status-Page:

This page shows everything necessary in cruise, including all navigation and final glide information. Pilots get quickly used to the layout of this page and don't want to miss any of the information displayed!

The left column starts with the 20-second averager (**Avg**). Below is the name of the next turnpoint followed by the distance (**Out**) to the turnpoint and the distance left or right of the courseline. Bearing to the turnpoint is displayed with an arrow that showing the direction which you should turn in order to track towards the turnpoint. received from the GPS is displayed. The On Screen Help for this field is shown below.

```
Avg 06 MC 16
Altfeld Water 0
Out 533 Bugs 0%
Righ112 ... Wind057
251▶ at 27
Q 10133 Alt1744
218115 Fin 585
$T15930 _ ---8959
```

Below **Q**, your current ground-track as

With the navigation display on this page it is very easy to find the proper section for rounding the turn!

At the right side the MacCready (**MC**), **Water** ballast, **Bugs** influence on the glider polar, and the estimated **Wind** (*direction and magnitude*) are set.

Important for all calculations of the SN10 is the proper setting of the QNH value (**Q**). On the basis of the very accurate internal altimeter (**Alt**) all calculations are performed! QNH and altimeter setting are coupled so that changing the QNH changes the altitude and vice versa!

```
CLIMB or CRUISE
track from GPS
if available,
ENTER toggles
(also changed by
automatic
switch)
[MagHdg @ kmh]
```

Below the altitude, **Fin** indicates the altitude necessary at the destination air field (field elevation + reserve). Finally, at the bottom right, is the altitude you are currently above or below glideslope to complete the task. --- indicates that you are below, +++ says that you are above. This surplus or deficit altitude is displayed as *total energy height(!)* and is therefore independent on pull or push actions! The glider symbol in the center of the page gives the glideslope indication graphically, it begins to rise if you are less than 130 m below glide slope.

You can see immediately how far you are above or below glideslope ! No extra work is required for final glides around a turnpoint, this is automatic !

If you use your **SN10 without GPS-coupling**, this page is slightly different, to better support navigation and wind calculation in this mode of operation.

For all glider pilots most important is the wind information, available on the
SN10 Wind Page

If a GPS receiver is connected to the SN10, the system calculates automatically the current **Wind** (velocity and direction). **Certain** indicates the reliability of the calculated value and **Headwind** shows the current headwind.



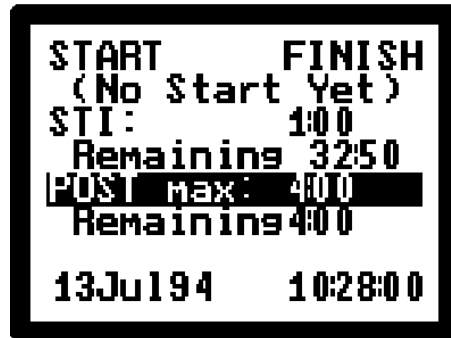
The five lines below are giving the wind in the different flight levels. The first column shows the altitude, the second the wind direction and velocity. And the last indicates how old the last wind calculation in this layer was.

The arrow at the upper right gives the wind direction with respect to the flight direction (heading). This is very helpful at ridge soaring and searching for thermals.

Specially for the contest: Assistance before going through the start gate and during time limited tasks as Speed-Only or POST,

Timers and Start Time Interval (STI) Warning:

Before take off the start time interval (STI) and the time available for time limited tasks (**POST max**) should be set. Pressing **Enter** when the cursor is placed on **START**, while going through the start gate, resets all timers and counters. The field **Remaining** below **POST** shows the time remaining for the task.

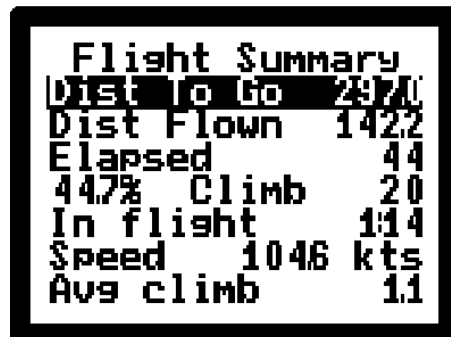


STI will be started automatically when the glider is launched or by pressing Enter (with the cursor on **STI**). 10 minutes before your start time interval is over, the instrument will give an **STI Warning**.

The clock with the current date and time are indicated at this page.

Flight Statistics, during and after flight an important help to improve the tactics,
the Flight Statistics Page:

During flight it is often helpful to have a look at the flight statistics for changing the strategy of the flight and increasing the speed. After the landing it is helpful for future flights to see the peculiarities and the special quality of the flight and to compare with other pilots.



This page starts with the distance remaining to complete the task (**Dist to Go**), the distance already flown (**Dist Flown**) and the time elapsed since starting the task (**Elapsed**).

Knowledge of the percentage time spent during climb and cruise (**% climb**), followed by the time spent for climbing can be important for future tactics.

In flight shows the time since the launch up of the glider until landing.

Speed gives the average speed of the portion of the task already flown, in your choice of units.

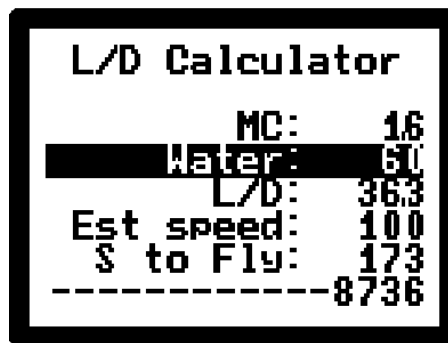
Avg climb indicates the average climb rate during the task.

Always useful is to get a general idea of the glider performance at the present settings, the L/D Page:

The L/D Page shows changes of glider performance data with changing MacCready setting (MC) and Water ballast.

For the given MC value and water ballast, L/D at normal cruise, the estimated average speed (Est speed) and the MC speed which must be flown between the thermals (S to fly) are shown.

The bottom row again shows the altitude below (---) or above (+++) the task glide slope.



To assist the pilot in searching for air fields or landing, we provide the Alternates Page :

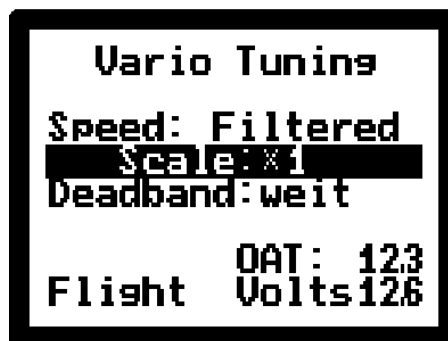
here we list all fields marked as landable in the order of their distance. Set the Cursor on the field → Go → and press Enter to choose the proper landing sites or air fields. The Bearing (Brg) and distance (Out) are given in the line below. The next line shows the arrival altitude with respect to the elevation of the field (+150m security altitude), assuming a direct final glide to the field under the conditions selected on the status page. If you wish to finish your earlier task instead of landing at the selected field, simply put the cursor on the position **..Restore Task..** and press Enter. Now your initial task will be restored.

All information available for the turns and fields: Place the cursor on any position displaying the name of a turn or field and press Enter. The SN10 will show you all information available for this point, i.e. short name, the coordinates and elevation as well as the long name. If available we show also the frequency and the kind of pavement. Additional we allow a four lines long description of the point.



The SN10 is adjustable to suit the weather situation, the Vario Tuning Page:

The indication Speed of the various meter indications can be adapted to the prevailing weather conditions as well as to personal preferences. **Specially developed ILEC-filtering allows the SN10 pilot, even in rough weather conditions, the choice of a fast indication without having a nervous instrument. This technique has many advantages for the fast centering of the thermals and is only offered by ILEC Variometer Systems !**



The **Scale** of the indication area is also adjustable to the prevailing weather conditions. For example the factor of 1 means a range of +5 m/s. The audio signal continues to rise after the needle hits the stops.

The MacCready speed command audio signal has an adjustable **deadband**, so it is pleasant calm in the cockpit when the speed is near to the optimum speed-to-fly.

Also the outside air temperature (**OAT**) is indicated. In the last row the **SN10** can be switched between **Flight** and **Setup** mode and the battery voltage (**Volts**) is displayed.

The pages described until now are all available in the **Flight** mode of the **SN10**. **Many options to tailor the system to your preferences and desired units are available in Setup mode**. The description of the Setup pages is far beyond the scope of this introduction.

The User Configuration Contains the Following Possibilities:

- the **units to be displayed**; all desired units are available!
- **audio setting**; Numerous different audio settings can be used. We recommend you to take the ILEC SN10 standard audio settings. This offers in a very pleasant way much information and allows due to a nonlinear frequency behavior even at high climb rates an excellent distinction in variation of the climb rate!
- **the configuration of the different meters**; here **Netto, TE, Relative or Speed to Fly** indication is possible. Also different average indications can be selected: the **normal 20 sec averaging** (Avg) and the **long term average** (20 min) are available (some pilots prefer this value as the MC setting!), as well as the **Thermal Average (TA_v)** as displayed at the **Thermal Height Band Page**.
- Also you can show a **Performance Index**; this is whether your glideslope is due to good cruising ways better than that what would be expected on the basis of the glider polar. It can be helpful for the decision when to start the final glide.
- **Of course every meter can be differently adjusted for cruising and climbing.**
- **Maintenance of the DataBase** and the building of user site pages.
- Optionally the Speaker can be mounted outside the housing.

Technical Data:

Power Supply:	9 - 15 DCV
Current (volume off / full):	ca. 100 / 150 mA at 12 V (without GPS) ca. 250 / 300 mA at 12 V (with GPS)
Housing, Main Unit:	Ø 80 mm, 150 mm long (without adapter)
Temperature Range:	-20 to +70 °C
Weight:	ca. 0.7 Kg

All ILEC products come with a 2-year warranty

Further changes and improvements reserved.