

# Glider Computer ZANDER / SDI ZS1

Program Version 3031/3033

19.10.2006

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## Changes to old version 3029:

### Flight Page:

The positions of the optional displays of 'track over ground' and 'cross track error' have been exchanged. Now GPS track, bearing and heading error are shown in one column and distance and cross track error in another column.

With cursor on wind input and 2 x <Enter> the calculated wind component in direction of the GPS target is transferred once to the flight page.

New info line for FLARM (last info line): **0543 -054 09 7/3**

Nearest glider with FLARM: distance (543m), height difference (-054m), direction (9 o'clock), number of FLARMS received (7), number of FLARMS shown on the FLARM page: (3).

If the cursor is set on this info line, <Enter> will show up the FLARM page immediately.

First wind info line: : **w: > 142° 025kmh** or **w: \* 142° 025kmh**

Straight flight wind (compass wind '>') and circling flight wind (circling wind, '\*') are averaged over 2 minutes. All other wind info lines show values averaged over 20 seconds to see fast changes of wind.

Remaining distance and length of route may now be up to 2999km (old version: 1999km), the maximum distance in the radial info line is 499nm.

Advancing the waypoints of a route was done until now by hand only. Now the route may advance automatically if set so under settings / 18= GPS alarm. If route advance is set to AUTO, the route will be advanced when leaving the observation zone or circle. The route may be switched forward and back by hand at any time even if AUTO is selected. The mode selected is visible on the flight page:

**A1/02:** route advance by hand only.

**A1>02:** route advance automatically or by hand.

### Wind Page:

The wind measurements for circling flight (circling wind) and straight flight (compass wind) shown on the wind page 09 are averaged over 2 minutes; these are the same values shown in the first wind info line. This long term averaging gives better performance for the optional continuous automatic wind transfer and it is easier to compare or check both types of wind measurements at any time.

If the wind page is accessed directly from the flight page, the cursor is positioned on the wind page as to make a one time transfer of the wind component in direction to the next waypoint and a return to the flight page if <Enter> is pressed again. But this one time wind transfer works only if the source of the vector wind (circling wind, compass wind or both) is selected before.

If the continuous wind transfer is turned on, it will be still turned on even after switching off and on the power to ZS1.

### FLARM Graphic Page:

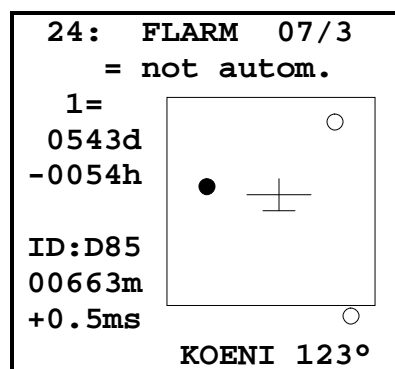
The FLARM page is the last page to find it easily.

Up to 9 FLARMS may be shown with a maximum distance of 2.5km.

For the nearest FLARM are shown:  
distance, height difference, FLARM ident, MSL altitude  
and variometer signal.

The other FLARMS can be selected too to show all information related to them.

It is possible on this page to select if this page should come up automatically if another FLARM is received or if another FLARM represents danger.



To show this page a FLARM must be connected to ZS1 with the FLARM set to 19200baud. The FLARM function must be activated under settings of ZS1.

If FLARM function is activated, the NMEA output of ZS1 is also switched to 19200baud. So a PDA connected to ZS1 must be switched to 19200baud too.

If FLARM function is activated under ZS1 settings and an operating FLARM is connected to ZS1 correctly, the full FLARM page is shown even if there is no other FLARM received. If connection is not correct or if FLARM function is not activated this page shows 'FLARM off'.

If the GPS simulator is turned on ('11 Function Test'), the FLARM page is shown even without FLARM connection or activation.

FLARM is connected to ZS1 like a NMEA unit to the 9 pin SUBD connector of ZS1:

ZS1: TX-PC (9p-SUBD: pin 3)	<>	FLARM: TX (5 blue)
ZS1: GND (9p-SUBD: pin 5)	<>	FLARM: GND (7 orange)
+12V	<>	FLARM: +12V (2 white-brown)

Attention: if ZS1-RJ45-row B is connected directly to FLARM:  
do not connect anything to ZS1-RJ45-8brown!

If +12V are connected to this wire (FLARM-1brown=+12V) the ZS1 will be damaged!  
Only blue, orange and white-brown may be connected together!

If PC connection of ZS1 is used for updates by PC, the FLARM must be disconnected during this time.

### Note to the use of FLARM:

The FLARM unit is designed to avoid mid air collisions between gliders. Even if connected to ZS1, the FLARM is the main source of information to avoid collisions, the warnings given by FLARM should be acted upon by the pilot. The information given by ZS1 should be accessed and used only when there is no dangerous condition.

### Photo Sector Graphic Page:

Now the photo sector page shows the GPS ground speed too. When crossing the start line the ground speed is stored on the stop watch page.

The alarm signal sounding within the observation zone was changed to make it different from the centering aid signal.

#### Stop Watch Page:

The stop watch page now saves the GPS ground speed besides distance to depart point and altitude when departing (crossing the start line).

#### Altitude Alarm:

The safety margin now depend on the actual climb rate. The safety margin is about the height which is made good within 30 seconds (example: for 3m/s climb rate the alarm will sound at 90m below altitude limit).

The safety margin is not less than 50m.

#### Audio in Speed Command Mode:

The speed command audio has a dead band which is now selectable in steps, Normally the dead band represents the first segment of the speed error column. The dead band can be increased under 03: settings / 05= audio / SC audio / dead band:

=1: one step, =2: two steps, =3: three steps of the speed error column.

#### Function of button F1:

Button F1 can be programmed to switch the mode of total energy compensation: compensation by probe or by electronic compensation (used with motorgliders when engine is running).

As there are different pressure connections required for each compensation mode, a pneumatic switch must be activated which switches between TEC probe and static port.

If the combination of compensation mode within ZS1 and the switch position is wrong, the variometer will be difficult to use and the wind readings are completely wrong.

#### OAT Temperature Sensor:

If the sensor for outside air temperature is faulty the standard atmosphere ISA is used for air density and rate of climb calculations.

The outside air temperature is not used if the temperature reading shows more than 60°C ( open sensor or no sensor connected) or if it shows less than -20°C (sensor with short circuit).

#### Second Seat Unit:

Now there are info lines for 'average L/D' and potential temperature 'pTemp'.