FLIGHT AWARENESS

Using Low cost Instruments

Kobo / Android/ LK8000 / XCsoar / Introducing **Airware**

- Introduction to Kobo
- Kobo Models
- Installation of Software
- Wiring of Kobo
- Xcsoar or LK8000
- Quick into to LK8000
- Break

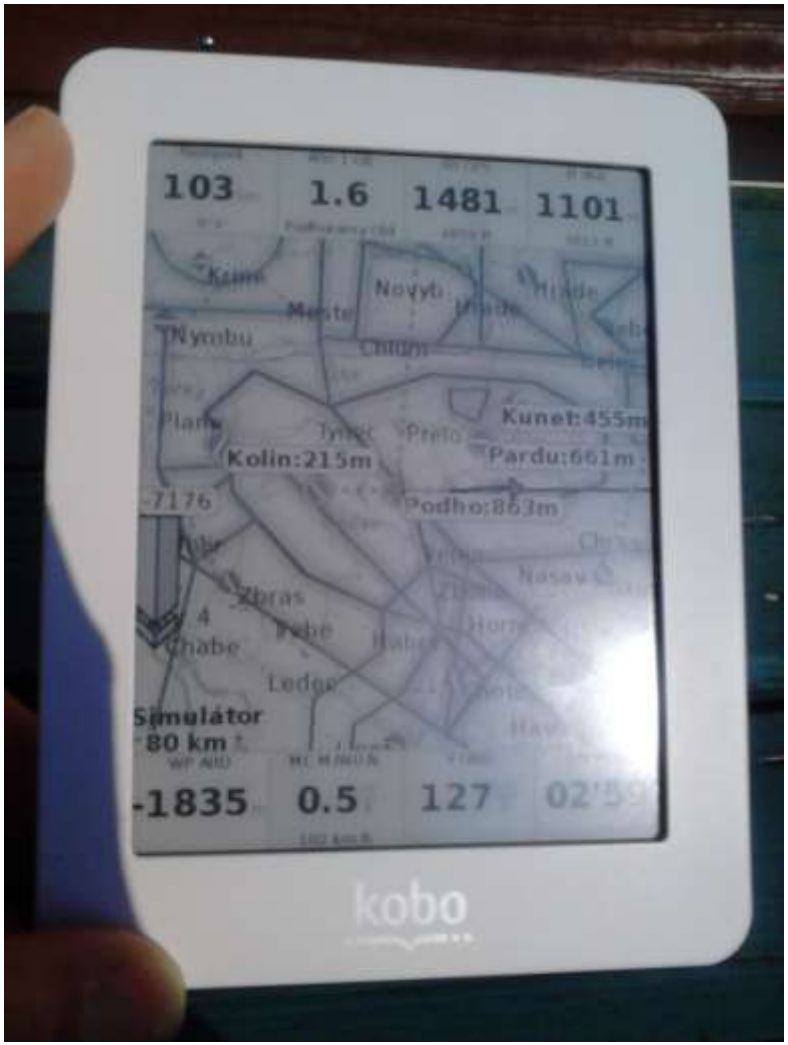
- Introduction to Air-Ware
- Benefits
- Hardware
- Installation
- LK8000 / XCSoar Screens
- Demo
- End

Kobos

- Cheap - £30-40
- Sunlight visible screen
- Light weight
- Low battery consumption.
- 3 Older models
- Two new

- GPS Cost : £5 - £45.

Kobo Mini

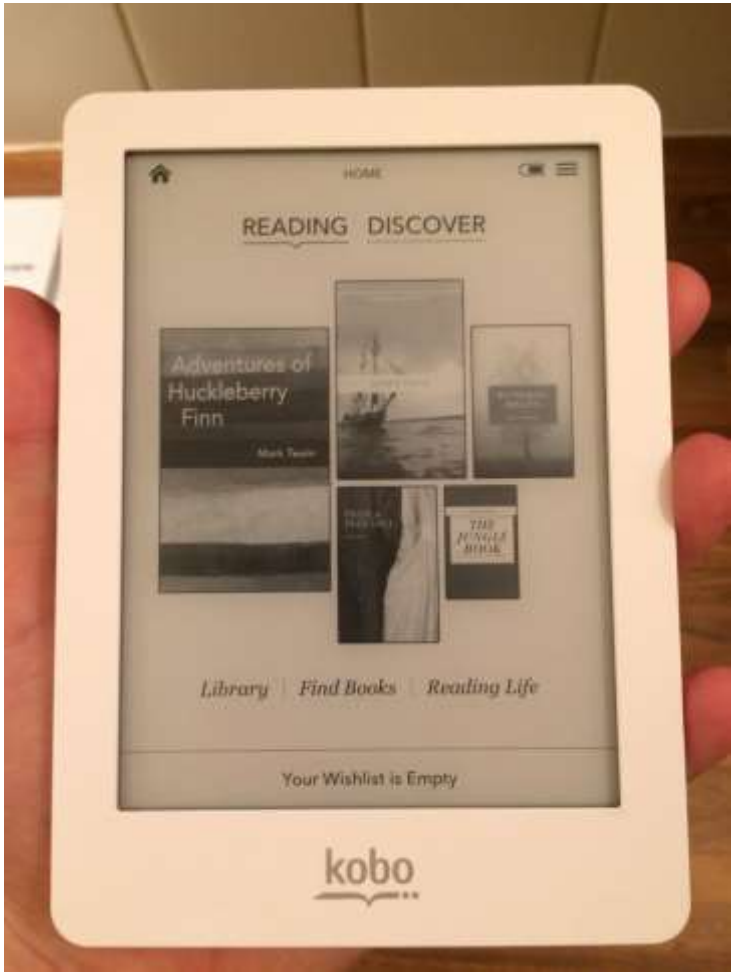


CPU	ARM Cortex A8 800 MHz single-core Freescale MCIMX507CVM8B
Memory	256MB Samsung DDR SDRAM
Storage	2 GB internal memory No SD card slot
Display	5 inch diagonal, 16-level grayscale 600 × 800 electronic paper
Input	zForce Touchscreen On-screen keyboard
Connectivity	CyberTAN WC121 802.11b/g/n SDIO Module
Power	3.7V 1000mAh
Dimensions	102 X 133 x 10mm
Weight	4.7 oz (134 g)

Kobo Touch

CPU	Freescale i.MX508
Storage	2GB
Display	6 in diagonal, 16-level grayscale 800 × 600 electronic paper
Input	USB 2.0 port (micro-USB connector), SD card
Connectivity	Wi- Fi (802.11 b/g/n)
Dimensions	165 X 114 x 10mm (6.5 X 4.5 x 0.4 in.)
Model	N905 B or C
Weight	6.5 oz (185 g)

Kobo Glo

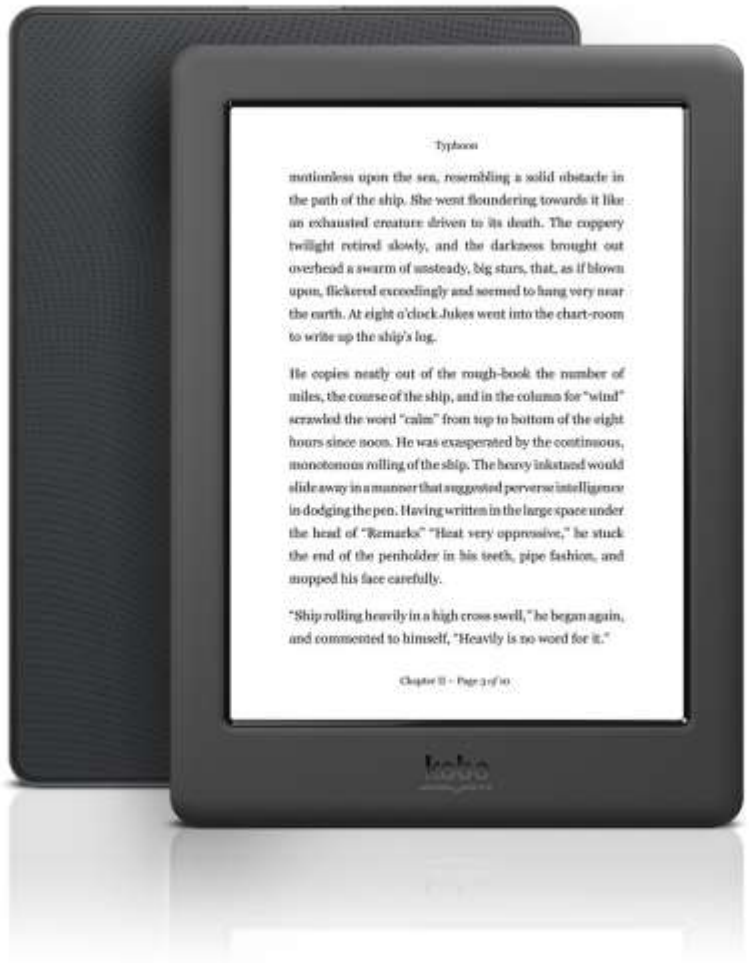


CPU	1 GHz
Storage	2 GB microSD card
Removable storage	microSD card slot
Display	6 in diagonal, 16-level grayscale 1024 × 768 electronic paper
Input	zForce Touchscreen On-screen keyboard
Power	3.7V 1200mAh
Dimensions	114 x 157 x 10 mm
Weight	6.5 oz (185 g)

Kobo Touch 2

Feature	Kobo Touch 2.0
Screen	6″ E-Ink Pearl
Screen resolution	800 x 600 px
Screen density	167 ppi
Grayscale	16 levels
Touchscreen	Yes
Front light	No
Storage	4 GB
Connectivity	WiFi 802.11 b/g/n
Dimensions	6.2 x 4.5 x 0.36″ 157 x 115 x 9.2 mm
Weight	6.5 oz / 185 g
Battery life	Up to 8 weeks

Kobo Glo HD



Screen:	6” HD Carta E Ink touchscreen, 1448 x 1072 resolution 300 pixels per inch
Weight:	180 g
Size:	157 x 115 x 9.2mm
Storage:	4 GB on-board memory, holds up to 3,000 eBooks
Front-light:	Built-in, fully adjustable ComfortLight with micro-thin coating for durability and even light distribution
Customizability:	TypeGenius: 11 different fonts and 48 sizes to choose from Exclusive font weight and sharpness settings
Connectivity:	Wi Fi 802.11 b/g/n, Micro USB
Battery Life:	Up to 2 months*

Android / WinCE / Iphone

- Xcsoar – Android (LK8000 coming soon)
- Available on Iphone
- WinCE – cheap SavNavs (poor screen)

Installation of Software

- Install Kobo desktop and update the unit.
- Download Xcsoar or Lk8000 from www.xcsoar.org or www.lk8000.it
- Switch on Kobo and connect micro USB
- Copy kobo.tgz to .kobo folder
- Reboot.
- Install Maps
- Install Airspace

Maps and Airspace

- Xcsoar- Connect Kobo to internet on wifi – proceed to configuration menus and press download.
- LK8000 – Visit www.lk8000.it – download the maps/terrain for your area and then upload into the kobo.
- Airspace – Download Asselect application – this will build a current airspace file.

Wiring & Config

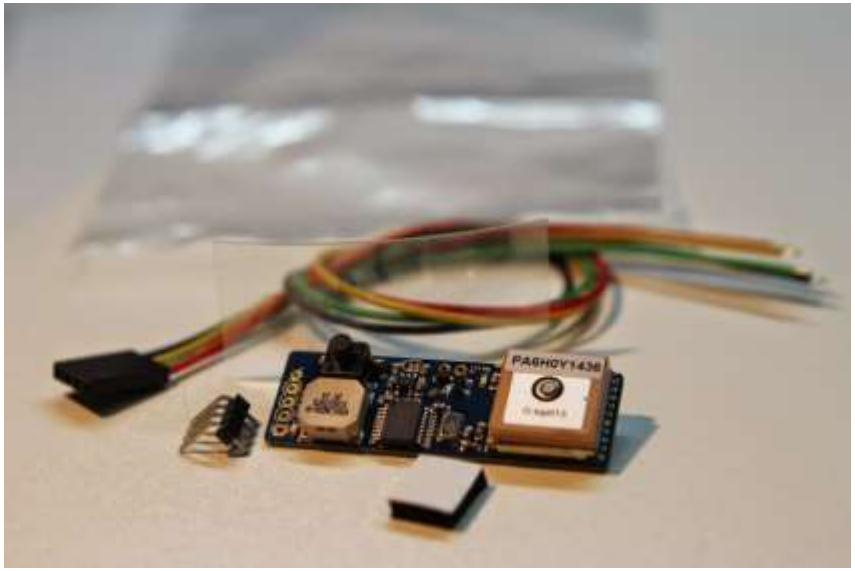
- Standard Serial GPS Module with UART
- 4 Wires
- +VE
- -VE
- TX
- RX

- Add a device in LK8000/XCS to suit your GPS.
- Download Maps

Kobo Device Port

- Configuration of the Kobo GPS
- Find baud rate of GPS (in gps manual)
- In Xcsoar/LK800 – add in the port /dev/ttymxc0 (8 bit)
- Standard GPS unit is Generic
- Press terminal or monitor to see GPS strings appearing for the software to use.

Bluefly Vario GPS

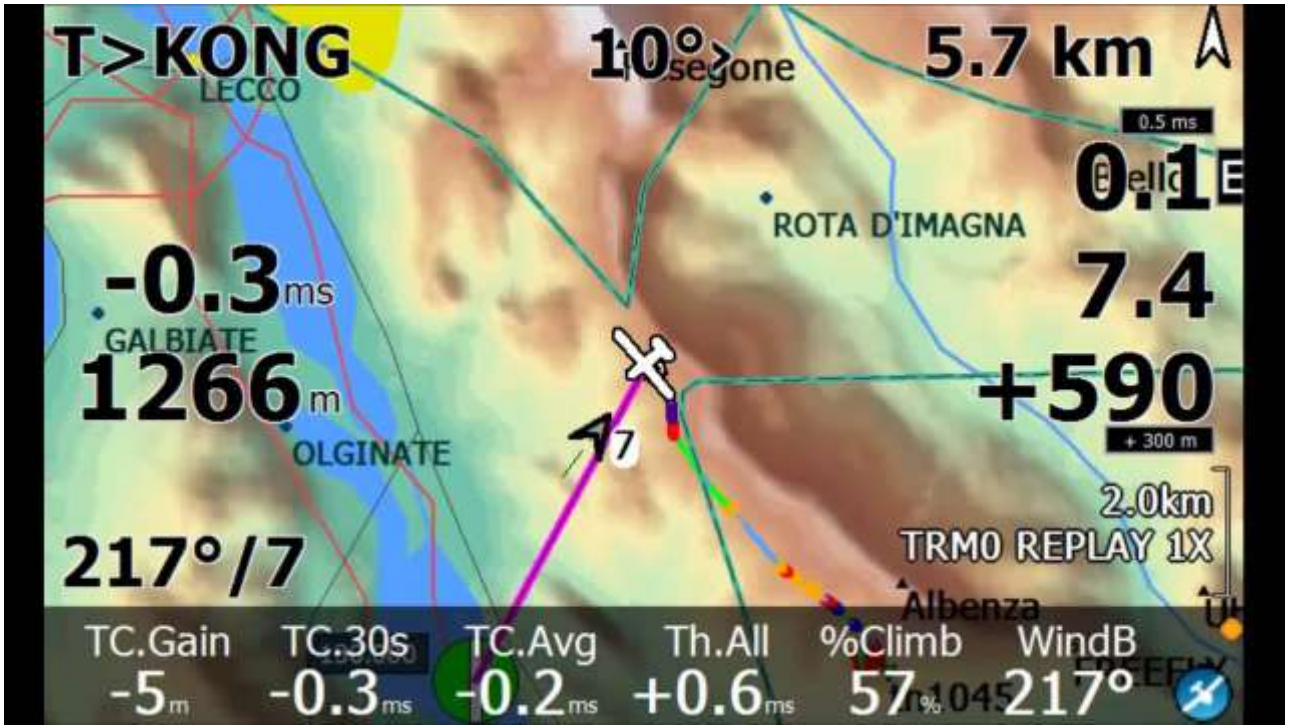


- Integrated GPS/Vario
- Lightweight
- Low Power
- Small footprint

Xcsoar or LK8000

- Personal Choice
- Demo both of them first.
- Both stable – apart from small bug in Xcsoar for Wifi.
- Android version available for XCSoar – LK8000 version coming soon.

LK8000


T>KONG
LECCO
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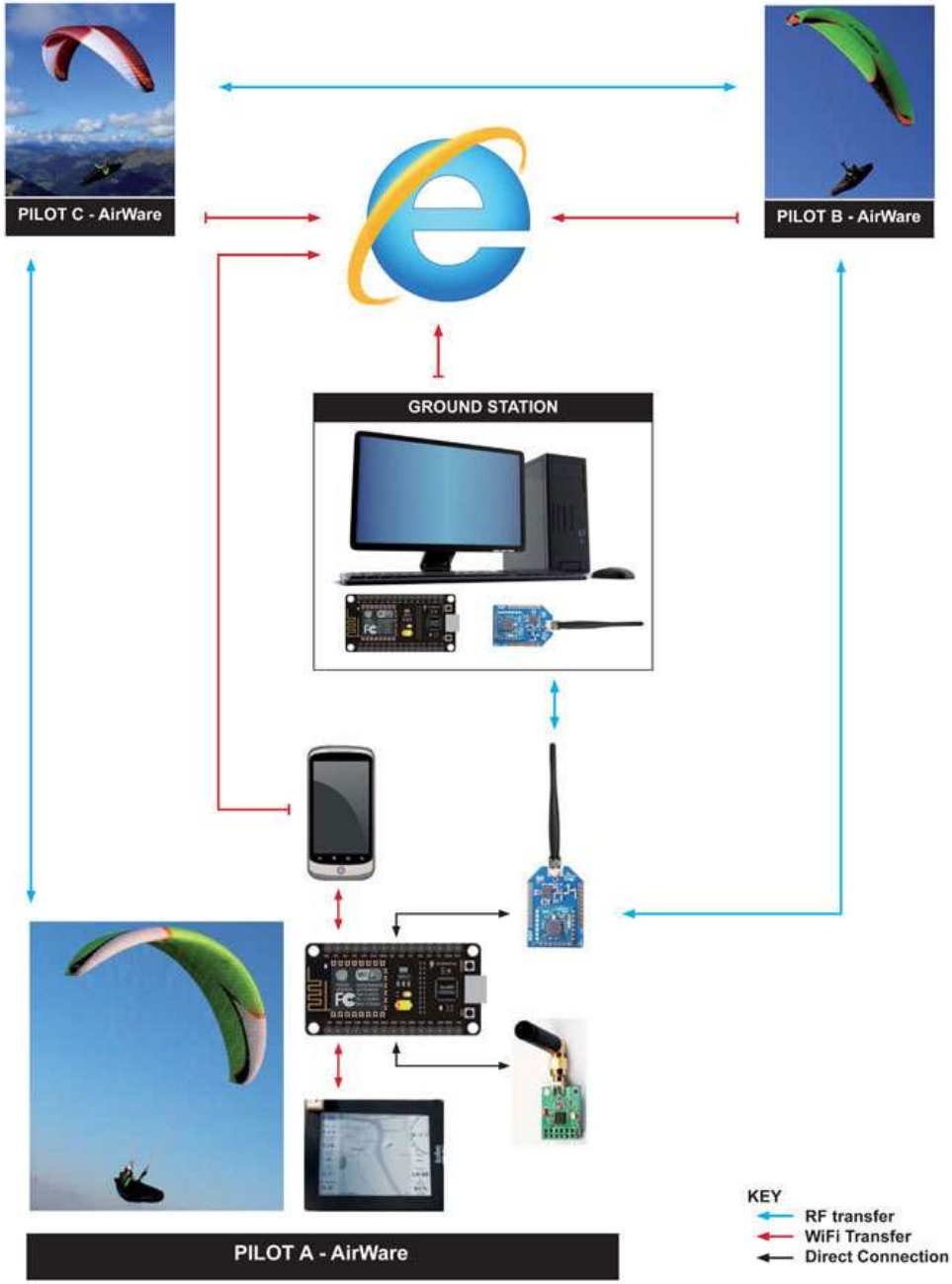
5.7 km
0.5 ms
0.1
ROTA D'IMAGNA
7.4
-0.3ms
GALBIATE
1266m
+590
+ 300 m
OLGINATE
2.0km
TRM0 REPLAY 1X
217°/7
Albenza
TC.Gain
TC.30s
TC.Avg
Th.All
%Climb
WindB
-5m
-0.3ms
-0.2ms
+0.6ms
57%
217°

Break

Air-Ware

- WHY?

PROJECT AirWare



Air-Ware System

- Prevent Collisions
- Increased Awareness of surrounding Aircraft
- Information of surrounding Air.
- Able to see pilots climbing.
- Tracking pilots.
- Web Tracking – Ground Stations
- Low Power
- Small Size
- Cheap !
- Update – via Web (3 mins)
- Livetrack24 support.

Build your Own - Hardware

Wifi Version

- ESP8266 module :- £5
- Lora RF module - £10
- Wires / leads - £2
- LED’s – 10p
- Box - £5
- Velcro - £1

~£20-£25

Hard Wired Version

- ESP8266 module :- £5
- Lora RF module - £10
- Wires / leads - £2
- LED’s – 10p
- Box - £5
- Velcro - £1
- GPS Unit - £10

~£30-£35

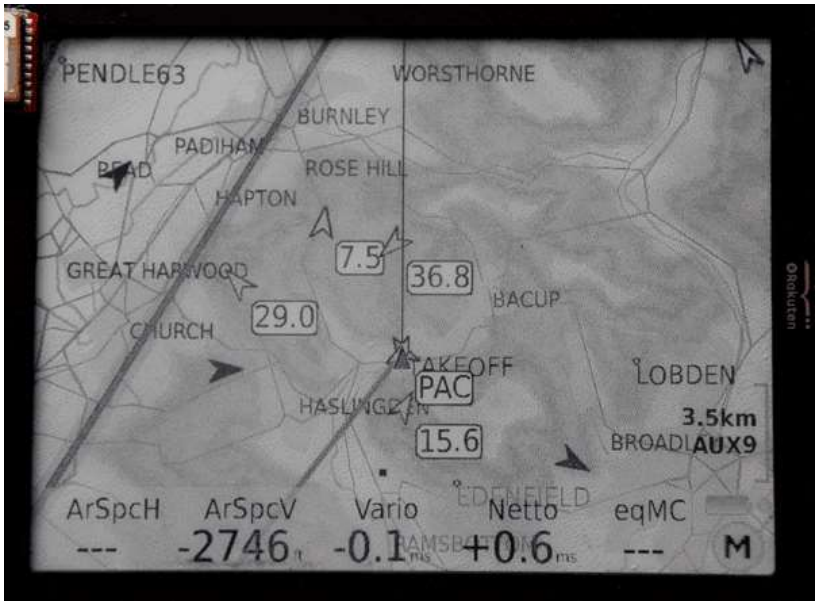
Other instrument manufacturers

- Currently working with one Major Manufacturer
- Flytec – supports but £250 to add Flarm to unit
- Naviter – has Flarm button, but no software behind it
- FlyHySky – Supports live track buddies but wont support Flarm strings
- Flymaster – No
- Syride - No

Building

- Testing with ESP alone
- Adding the rest of the hardware
- Solder around 12 wires – circuit diagram avail soon with new Transmitter/Receiver Unit.
- Add 2 LED’s
- Add usb lead
- Wire into the kobo / connect to wifi
- Read the website for details
- (Currently changing from the standard radio module to a new one.)
- Install into a custom made box – 3d printed (files are available to download or I can print)

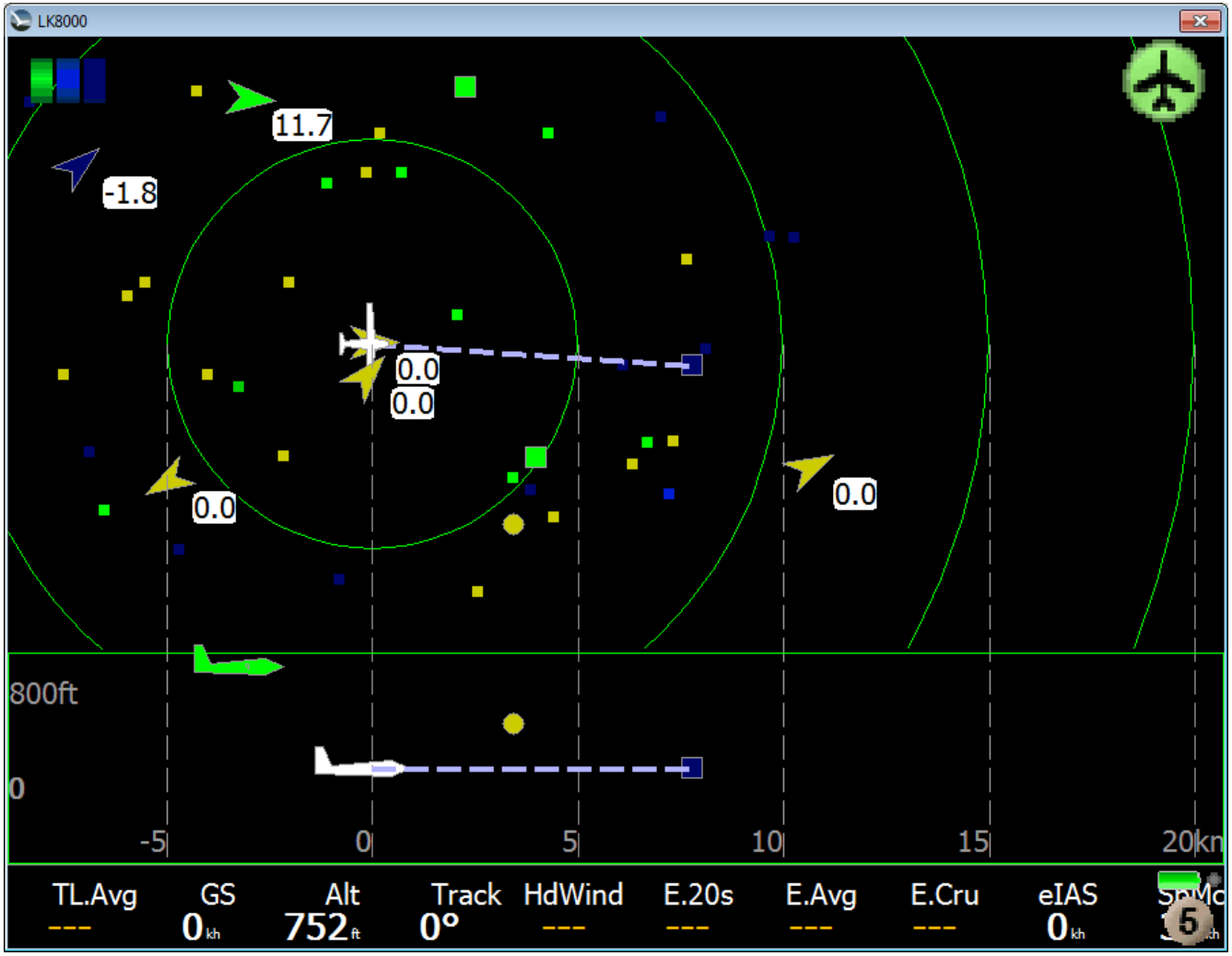
LK8000 / XCSoar Screens (video)



XCSoar Flarm Screen

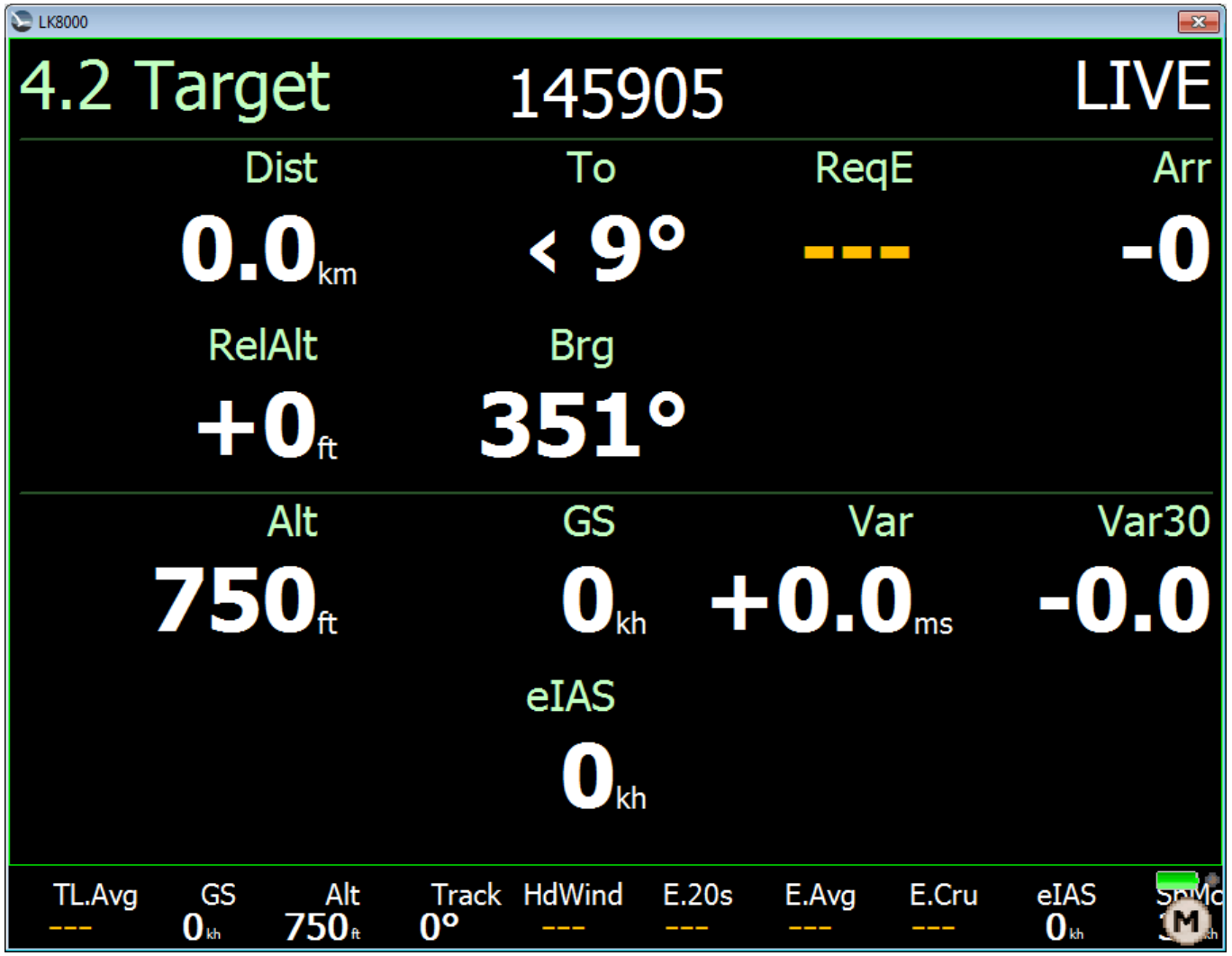
XCSoar Flarm Screen

LK8000 Flarm Screens

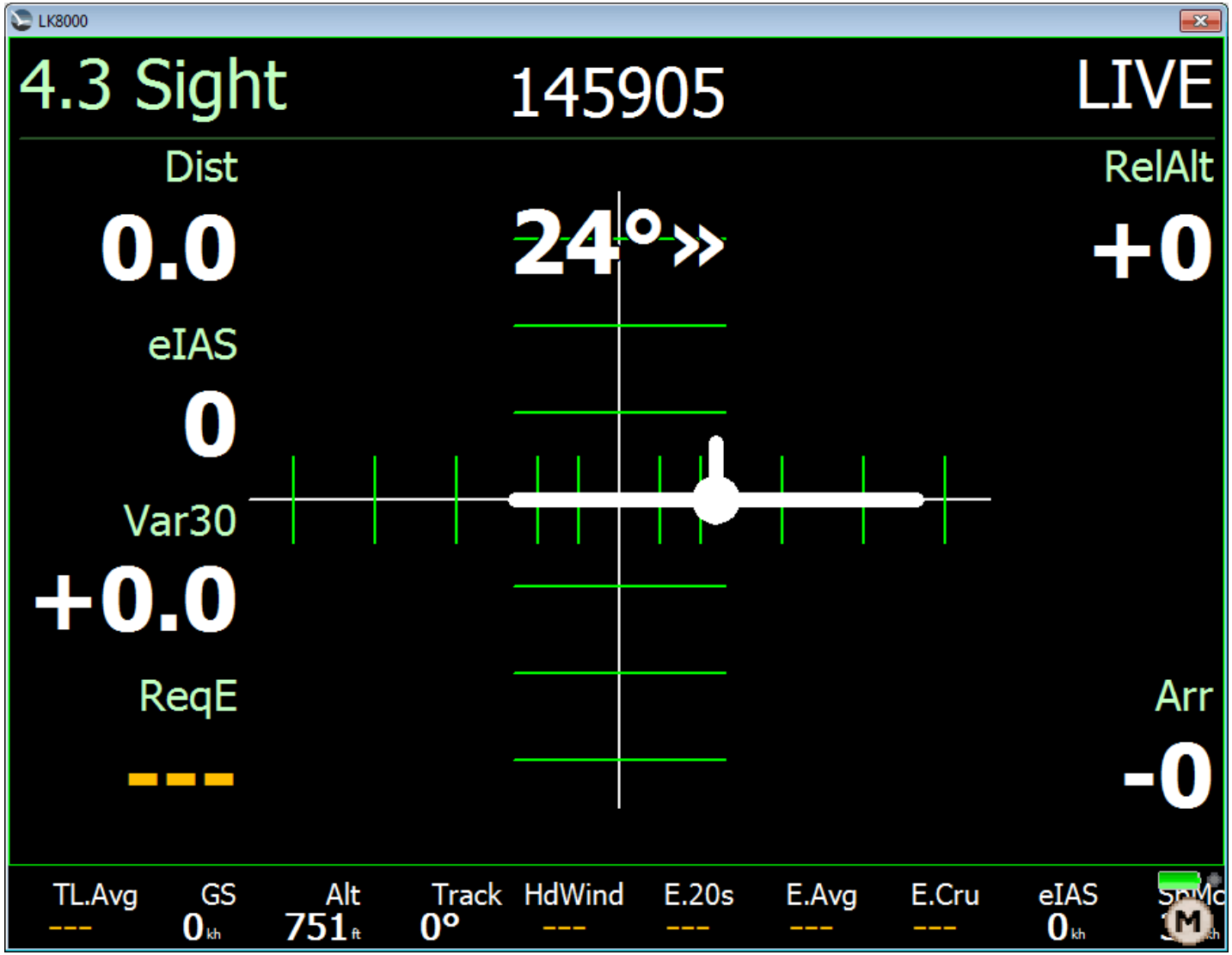


LK8000 Flarm Screens

LK8000 Flarm Screens



LK8000 Flarm Screens



Air-Ware Models

Wifi Only (Android / Kobo)

Hard Wired Unit
Kobo

Turn on and forget
Similar footprint to Kobo
Protects USB Port
Integrated Stowaway Antenna

With Bluefly – complete instrument
(GPS / Vario / Airware / Airspace)
for around £100.

Coming Soon – GPS-Wifi

- No modification will need doing to the Kobo
- GPS installed inside the Airware unit
- All data send over Wifi to the Airware unit
- Around £35 to make.
- Can be configured to run with bluetooth aswell.

- Base Station – Feel free to help.

Demo


PHONES
KILL A
VCA CONTROLLED CROSSFADER
KILL B
EFFECTS ON
WP Dist
Attn 1 GR
Alt BPS
H AGL

+++
516
-232
Details
Close
820 ft
0.31 mi
WP Attn
MC MANUAL
V GND
GR Avg
1.0
0.0
kobo
TL.Avg
GS
Alt
Track
HdWind
782
326°
5

Inspired to make one or Help ?

www.air-ware.co.uk