



## SBS-1 REAL-TIME VIRTUAL RADAR RECEIVER

Kinetic Avionic Products Ltd

[www.kinetic-avionics.co.uk](http://www.kinetic-avionics.co.uk)

£500 Approx (call for details)

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The October 2005 issue is on sale from all good newsagents.

It is not often that anything totally new becomes available to aviation-minded people – whether enthusiasts or industry professionals. However, the SBS-1 Real-time Virtual Radar Receiver brings Air Traffic Control (ATC) information to any one with a desktop or laptop computer. The system provides a 'picture' of all aircraft fitted with a Mode S/ADS-B (Automatic Dependent Surveillance Broadcast) SSR (Secondary Surveillance Radar) transponder system within a line of site distance from the unit's aerial.

Received signals currently come from (in the UK) all General Air Traffic (GAT), i.e. airliners, executive jets and turboprops, with a Civil Aviation Authority (CAA) requirement for all categories of aircraft to be equipped by March 2008.

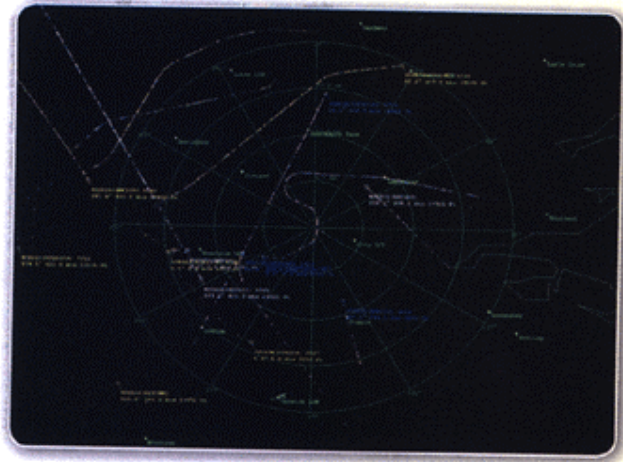


David Goodman, Keith Frewin and Derek Rowe jointly conceived the SBS-1 receiver following the mid-air collision near Elstree aerodrome between a helicopter and a microlight which the two microlight pilots died. The three colleagues thought that if the air traffic controller at Elstree had been able to use a system such as the SBS-1 he might have foreseen the collision and warned the aircraft involved. Mode S transmissions consist of a unique six-digit, 24-bit number for each aircraft – rather like the aircraft's registration – and with the ADS-B, provide position, heading, height and speed information as well. The signal can be interrogated from the ground.

The SBS-1 actually has a wide variety of possible uses within the aviation industry. To the enthusiast, it provides details of what aircraft can be seen from his or her location and what is arriving and departing at a local airport. It is not just the enthusiast who will benefit, however. When Mode S is installed on all aircraft, ATC at smaller airfields with no 'real' radar will be able to use an SBS-1 linked via a laptop to advise aircraft of possible conflicts. Flying schools can use the system to 'watch' students on solo flights or on navigation exercises to ensure that they do not get lost. John Houlder of Elstree Aerodrome, said "This equipment will be a blessing to all the operators of the small aerodromes which cannot support a full-blown radar installation. It will enable them to check that the aircraft in their vicinity are flying the correct routes which have been approved for noise abatement reasons, as well as to assist aircraft wishing to land". Various members of

the CAA and National Air Traffic Control System (NATS) have already purchased units in varying capacities for their use and analysis.

The SBS-a box is about the size of a video cassette (and about the same weight) and the package comes with an aerial and all the leads (with UK and continental adapters) required. Installation to a computer – via a CDROM – is simple and a real-time picture of aircraft transmissions soon filled the screen.



A range and bearing grid is superimposed on the screen and this has to be told the geographic location of the box – via Lat and Long. The left-hand side of the screen shows the tracks, with waypoints (navigational beacons) and airfields/airports highlighted. This can, of course, be customised for individual needs. The right-hand screen provides a table of aircraft information including the aircraft's Mode S code, nationality, flight number, heading, height and speed.

Unfortunately, from the Today's Pilot offices in deepest Lincolnshire the nearest airways are some 20 miles away and Nottingham East Midlands Airport some 35 miles. With terrain in the way, this meant that with the aerial provided, movements at East Midlands could not be monitored, but aircraft on the main airways system could. A larger aerial would produce better reception. However, most of the potential users of the SBS-1 would probably live closer to an airport and therefore would get better reception.

To decode the six-figure number and convert it to a registration, access to a database is required. One is provided on the CDROM with over 16,000 aircraft – mainly from the USA, Canada and the UK - and the website G-INFO gives the registrations for all Mode S-equipped UK-registered aircraft. There are also other websites with the information, but on a subscription basis.

The basestation is currently being produced at a cost of around £500, which may sound like a lot of money for an individual, but considering that the cost of a high-quality airband radio scanner stands in excess of £250, is perhaps not as expensive as it seems. For operators of flying clubs and small airfields, the potential improvements to safety far outweigh the relatively small outlay. For more details, contact Mark Maurice on 020 8953 8855 or visit [www.kinetic-avionics.co.uk](http://www.kinetic-avionics.co.uk). TD

