# Portable ADS-B Receiver Mode-S Beast Receiver

AvionixTech

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#### 1. Introduction

Mode-S Beast Receiver is a high-performance portable ADS-B receiver made of <u>Mode-S Beast ADS-B receiver board</u>. Mode-S Beast Receiver can receive and decode ADS-B, Mode-S and Mode-A/C signals.

The Mode-S Beast Receiver allows you to receive the positions of the aircraft up to 400 km (220 nm) away. In addition, all you need is an antenna and a PC with freely available software for graphical representation.

The device is powered by USB.

The binary formats are supported by a variety of software, such as PlanePlotter and adsbscope.



#### 2. Specifications

- Output DF17 & DF18 data
- Output Mode A/C/S transponder data
- Provide data format for customer development
- Output data with timestamp. But please note that this timestamp is internal 12MHz clock, rather than GPS time. So not OK for MLAT.
- ➢ USB for power and data output.
- Physical size: 113 x 81 x 31 mm

### 3. Driver Installation

When connected with computer, Mode-S Beast Receiver will automatically install drivers. If not, please download fdti drivers here. http://www.ftdichip.com/Drivers/VCP.htm

#### 4. Data Format

The receiver can provide raw data in the so-called "AVR format", as showed below.

\*8D4B1621994420C18804887668F9; \*02E1991058EF310000000000000; \*20000CB10D89FB0000000000000; \*20001196553C250000000000000; \*02E198BFAF86760000000000000; \*02C18CB14E2D980000000000000; \*02E198BFAF86760000000000000; \*200015301CB2960000000000000; \*20000F971E45820000000000000; \*200015B3EF45770000000000000; \*583E1BDABC27350000000000000; \*280008006C738F0000000000000; \*200010142CC4CB0000000000000; \*02E1941016FC9E0000000000000; \*02E1919653E46F0000000000000; \*200014101024D40000000000000; \*02C6081A5757E80000000000000; \*02E1941016FC9E0000000000000; \*8D4CA27A608145305B0B09EAD8B5; \*02E19838575F0A0000000000000; \*A0001014BC900030A8000038ED68; \*200015301CB2960000000000000; \*8D400A6658AB0540C701D9CA672E;

#### 5. Check the serial port

In this example it's COM12.



#### 6. adsbscope ADS-B display software

No need for installation, just double click the .exe file would be OK. The two .exe files are different in that the \_256.ext program can display 256 aircrafts at most, while the \_16384.exe program can display 16384 aircrafts at most.

🍌 ssb1	2014/12/16 星期	文件夹	
🔀 adsbscope27_256.exe	2014/4/19 星期	应用程序	1,756 KB
🔀 adsbscope27_16384.exe	2014/4/19 星期	应用程序	1,756 KB
initfile.txt	2014/12/16 星期	Text Document	4 KB

Choose decoder ---> Beast

😹 adsbSC	OPE 2.7 by	sprut (sma	ll)		-	-														- 0	×
File View	Colors	load Maps	Config	Navigation	n other	decoder Be	ast														
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					~						Status:							Time:	13:06:26		
				E-W: 17	BNM																

#### Center: Lat=51.0000?Long= 6.0000? Range: 93 NM = 167 km [Coord: 52.4625?N / 6.8544?E Framerate: Time: 13:06:26

#### select COM-port

world_coastlines RAW-data and Info	Î	select COM-Port	adsbPIC-Decoder-Mode
15189 points loaded ##AirportDOMERAT ##AirportWAIROA ##AirportLASHIO		Connect	C 1 - reserved C 2 - all received data C 3 - only DF17
4188 Airports loaded	-		4 - only DF17 + CRC-ok.

Input serial port and baud rate 3000000.

Setup C	om-Port	_ 🗆 🗙
Port	COM12	-
Baud rate	3000000	•
		Cancel 🖵

Then click Connect, it's connected.

Set an airport nearby. In navigation->goto town or airport.

Towns			Airports	
A Corupa				_
Aachen	Â.		PEM	<u>^</u>
Aalborg			PEN	
Aba			PER	
Abadan			PET	
Abakaliki			PEU	
Abakan			PEW	
Abbotsford			PEZ	
Abengourou			PFB	
Abeokuta			PFJ	
Aberdeen			IPFU IPCC	
Abidian				
Abilian			IPGI	
Abilene			PGK	
Abohar			PGX	
Abomev-calavi		go back	PHC	
Abu Dhabi			PHE	
Abuja		Close	PHF	
Acapulco	*	0036	PHL	-

Done!

## 7. planeplotter ADS-B display software

In Options —> Mode-S Receiver —> Beast Receiver —> set serial comms port. Set port number and date rate 3000000.

Comms port number	11
Comms port data rate	3000000
Plot isolated position	reports 🗆

In Options —> I/O setting Set beast receiver serial as below

Input/output settings	x
Input data	
ACARS reception from audio input	
Mode-S/ADS-B> PlaneGadget Radar	<b>A</b>
DF from audio input Beast receiver serial Beast receiver TCP	
HFDL with PC-HFDL AVB receiver	
UDP/IP data from net	-
UDP/IP audio from net Allow Auto Mlats	
F HF Selcal Raw data for Mlats	
UDP/IP local port Local GPS	
Output data	51
Log Mode-S (.log)	1
Log Mode-S (.bin)	
Log desig.acft. IP2 4181	
Log local GPS	
I Airmaster log format Enable IR 30003	
Memory-Map output	
UDP/IP output	
I HFDL Remote IP(s)	
Mode-S 🔲 UDP audio out to net 🔲 Control Remote F	P
DDE output	-
ACARS DDE service PlanePlotter	
HFDL DDE topic ACARS	
Mode-S DDE item LiveData	
Cancel OK	

Process —>start. Done!