openAir nano is a high-performance single channel ADS-B receiver with integrated battery buffered GPS module.

The solution offers excellent surveillance accuracy, update rate and identification information at lower cost compared to traditional surveillance systems. The device embeds a powerful multi-core processor that allows running multiple ASTERIX processors, a web-based CMS application and custom applications on request.

Messages are timestamped by a high-precision GPS synchronized timestamp to detect duplicate messages received from the multiple receiver stations and enabling use as in a multilateration network.

openAir1090 nano offers:

• Surveillance coverage in non-radar airspace

• Scalability from a single sensor system to a multi-sensor distributed MLAT system

• Easy data exchange with other systems (ASTERIX, JSON, RAW formats)

• Advanced decoding techniques, CRC correction, best-in-class decoding of overlapping signal frames

• High dynamic receiver for monitoring of en-route, terminal area and surface movement at the same time

• Compact and high reliability

• Configured to be used as stratum-1 NTP server

• Embedded band-pass filter to allow good performance in difficult RF environment

• Decoding according DO260/A/B, ED-129B compliant

• 110-240VAC, 5VDC, PoE power options

• Direct data feed for AVIONIX traffic situation display *tsd*, traffic analysis tool *tda* and traffic data monitor *tdm*

• Receiver may be adapted to be used for UAT on 978MHz and FLARM/OGN on 868MHz

• Option to run AVIONIX FlightLog function to record AOBT, ATOT, ALDT, AIBT when installed at an airport
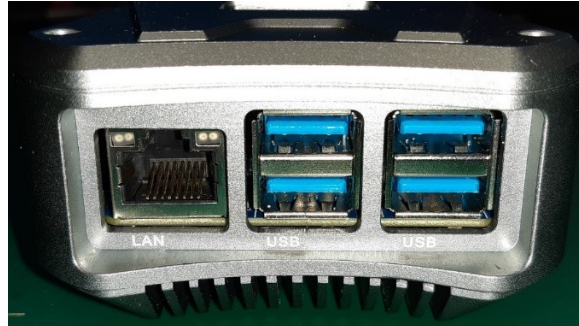
System Overview
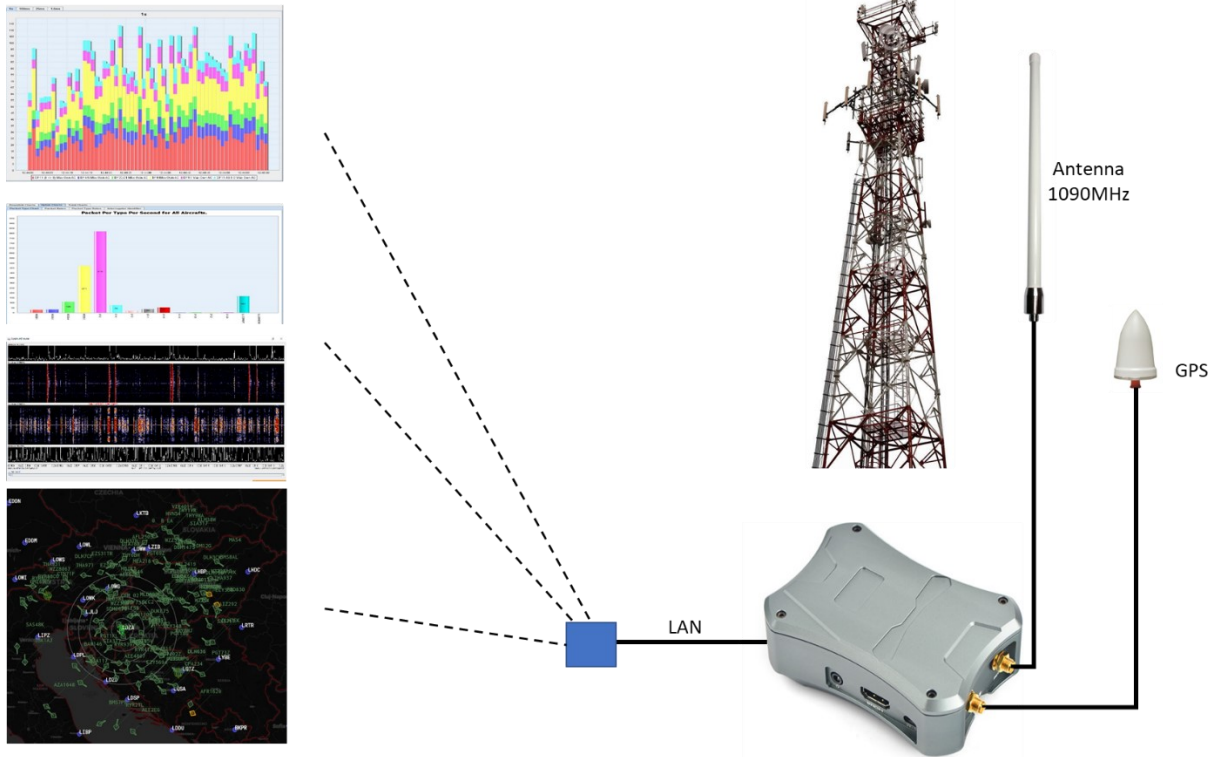
Front Panel

Item	Description
ADS-B input	1090 MHz antenna connector (SMA female)
GPS input	GPS antenna connector (SMA female)
LED 1090 RX	Red LED, short pulse for each message on 1090 MHz
LED GPS 1PPS	Yellow LED, GPS pulse-per-second
LED SYS	Green LED, heartbeat pulse indicating CPU load
LED PWR	RED LED, constant ON

Rear Panel

Item	Description
LAN	1Gbit Ethernet LAN port
USB x 4	USB 3.0 ports to connect mouse, keyboard, external storage device

Side Panel

Item	Description
USB-C	DC-5V power input
HDMI	HDMI port to connect monitor
Audio	Audio input/output

AUX Display

With every receiver a small TFT display is supplied that can be plugged to one of the USB ports. The display provides information about the assigned IP address and the reception status on GPS and the 1090 MHz frequency.

Technical Parameters

Power supply		
Input voltage	5 VDC/2A	
Power consumption	Max 8	[W]
Dimensions		
Type of enclosure	Desktop enclosure	
Front panel width	75	[mm]
Front panel height	37	[mm]
Enclosure dimensions (w * h * l)	75 * 37 * 109	[mm]
Weight	300	[g]
1090MHz Receiver Input		
Frequency	1090	[MHz]
Antenna Input	50	[Ω] SMA female
Sensitivity and dynamic range	-95 to 0	dBm
Processing	>2000 MODE-S	Msg/sec
BIAS-T for external LNA	Configurable, 5V/200mA	
GPS receiver		
Antenna/power supply	Active antenna 3.3VDC	SMA female
1PPS Frequency Stability	<=5ppb	GNSS locked
GNSS	GLONASS, GPS / QZSS	
Network connection		
Ethernet type	Cat. 5e, 10/100/1000BaseTX	RJ45 connector
Surge protection	8kV IEC 61000-4-2	
Data protocols	TCP/IP, UDP/IP, HTTP	
IP address	Fixed or DHCP	
Environmental specification		
Ambient temperature	0 to 40	[°C]
Relative humidity	<80	[%]

For information or demonstration please contact:

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