peralex
the sense of signals

ESRX-1090
ADS-B Receiver

Overview

The Peralex ESRX-1090 (Extended Squitter Receiver) is a Mode A/C/S (1090 MHz) receiver capable of capturing detailed information from cooperative aircraft. The receiver decodes Mode S and ADS-B protocols which may include reported aircraft altitude, position, heading and velocity.

Through accurate receiver timestamping, three or more receivers can be used to track aircraft by multilateration (MLAT). This added layer of localisation and validation provides protection against transponder position spoofing and can be used to track aircraft with outdated transponders.

Key Benefits

▶ ADS-B detection range of up to 450 km
▶ Accurate aircraft position reporting of cooperative aircraft using ADS-B (via onboard GNSS)
▶ Uncooperative aircraft position reporting through MLAT
▶ Compatible with all major 1090 MHz transponder protocols
▶ Unique aircraft identification through ICAO address and callsign
▶ Reception of the aircraft's physical properties and intent through ADS-B
▶ Passive
▶ Simple installation with a single-cable POE interface
▶ Easily scalable and networkable
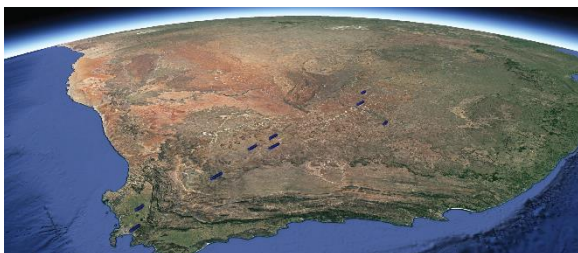▶ IP67 rated

ADSB

MLAT
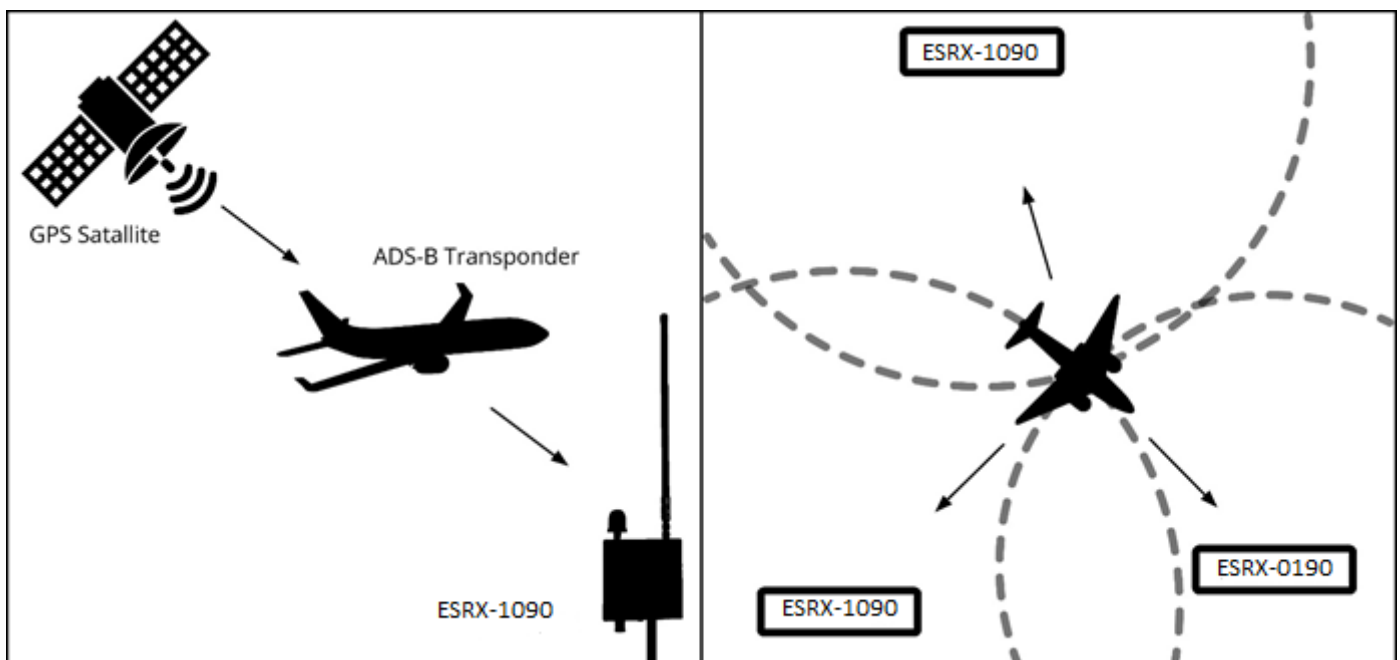
Applications

- ▶ Covert aircraft monitoring networks
- ▶ Augmentation for other airspace monitoring systems such as radar
- ▶ Surveillance of uncooperative aircraft
- ▶ Detection of position spoofing on ADS-B transponders

MLAT measurement highlighting the occasional inaccuracies of ADS-B

Long range detections

Configurations

One or more ESRX-1090 receivers can be deployed for ADS-B monitoring as a fixed or transportable system. Multiple sensors connected over a network can be used to cover thousands of kilometers of airspace with minimal infrastructure.

For MLAT capabilities, three or more ESRX-1090 receivers can be deployed and connected to a central processing server for MLAT position tracking and reporting.

The ESRX-1090 can be integrated with the Peralex Passive Radar system to provide a complete aircraft tracking system of both cooperative and non-cooperative aircraft.

An API is provided for integration with other 3rd party systems.

peralex
the sense of signals

Detailed Specifications

Parameter	Specification
System Specifications	
Operating frequency	1090 MHz
Update rate	1 Hz
Dimensions of the receiver unit	350 x 350 x 100 mm
Total power consumption	4 W
GNSS	GPS, Galileo, GLONASS, BeiDou −167 dBm navigation sensitivity.
Weight	2 kg
Power supply	POE (IEEE 802.3at) 48 V
Data interface	1GbE LAN (1000BASE-T)

ESRX-1090 Brochure v0.01
This specification is not contractual and is subject to change without notice.

www.peralex.com

tel: +27 21 710-7440 • email: peralex-information@peralex.com
Peralex House, 5 Dreyersdal Road, Bergvliet 7945, Cape Town
PO Box 215, Bergvliet 7864, South Africa

© Peralex 2021

peralex
the sense of signals