QUADRANT

ADS-B & MULTILATERATION GROUND STATION

HIGHLIGHTS

- Compact self-contained ADS-B Ground Station
- Highly versatile performance monitor QCMS (Quadrant Control & Monitoring System)
- Sophisticated degarbling & error correction algorithms
- Auto adjustment of sensitivity & noise level
- Geographic data filter
- Configurable ASTERIX category 21 output supporting multiple profiles
- Parallel feeds for ADS-B & MLAT data
- SNMP V2C & SNMP V3 interface with access control & encryption for secure remote monitoring & control
- Optimally suited for outdoor setup
- Low power consumption (< 10 Watt)
- Fulfils ESARR 4 & ESARR 6 safety standards

COMSOFT

INTRODUCTION

Quadrant is COMSOFT's response to growing demands from the aviation industry, pressured by lowering investment budgets and increasing safety demands. Quadrant stands for COMSOFT's compact and self-contained ADS-B and Multilateration Ground Station, including a 1090 MHz and a GPS antenna system. Quadrant can be set up easily, anywhere.

Quadrant embodies a perfect trade-off between a high level of performance and reliability and low investment.

The Ground Station directly connects to IP networks and supports remote and interactive system configuration. Once set up, the Quadrant ADS-B Ground Station transmits surveillance data to up to 20 different client systems compliant to the ASTERIX standard.

The sensor features auto adjustment of sensitivity and signal noise level. This supports an easy installation without the need for specialized RF tools or time consuming, laborious installation procedures. All system parameters can be set remotely using the Quadrant Control and Monitoring System (QCMS), which ensures permanent performance supervision during operation.

Thanks to its high precision clock the ground station can also form the cornerstone of a network for multilateration surveillance.

AUTOMATIC DEPENDENT SURVEILLANCE BROADCAST (ADS-B)

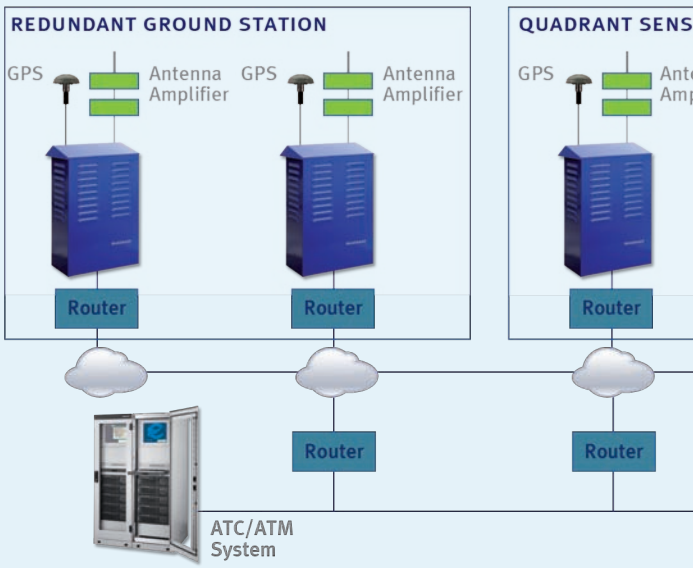
The worldwide air transportation community recognizes ADS-B as the upcoming surveillance technology. It excels in the provision of precise air traffic surveillance at low investment and operation costs.

Depending on the position data provided by aircraft broadcasting 1090 MHz Extended Squitter signals, the ground station implements an effective measure to realize Air Traffic Control at reasonable costs while offering better performance at equal safety standards. The ADS-B technology is most attractive in areas where the implementation of conventional PSR/MSSR or Mode S radars is difficult or their deployment is inefficient.

ADS-B is suited for En-Route and Approach Air Traffic Control. In addition to easy deployment the Quadrant ADS-B Ground Station offers a highly sophisticated solution to a wide range of users.

In combination with conventional PSR/MSSR or Mode S radars, ADS-B Ground Stations represent an ideal backup alternative or can efficiently eliminate surveillance gaps.

This especially applies to regions where radar coverage is limited due to line-of-sight obstruction or in areas where radar coverage has not been established.

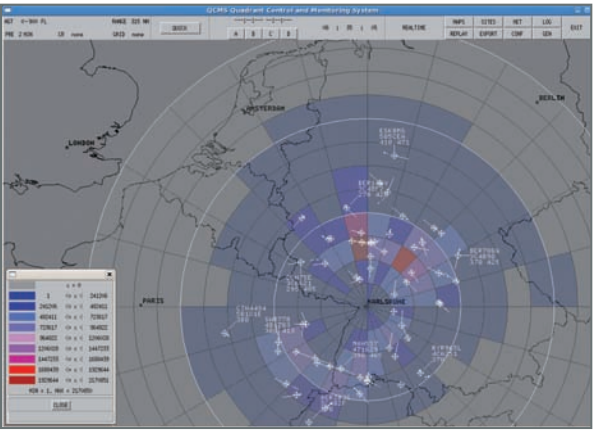


ADS-B Architecture

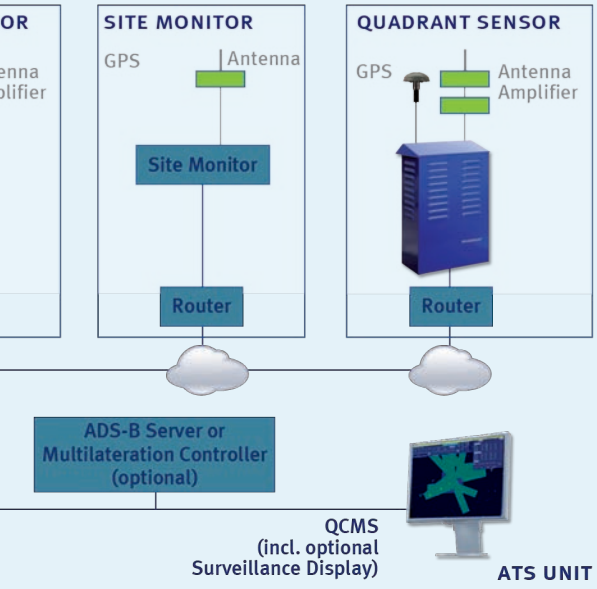
QCMS

The Quadrant Control & Monitoring System connects via IP to up to 128 Quadrant ADS-B Ground Stations, thereby supporting an integrated system and performance monitoring. By default, QCMS monitors the operational status of the ADS-B Ground Stations and, if so configured, initiates an automatic switchover in case of unit failure.

With its integrated surveillance display client, QCMS is able to present the sensor derived raw air-situation from one or several sensors. In addition to the presentation of live data, QCMS continuously captures all sensor information supporting an immediate replay for event analysis.



QCMS monitoring a selected airspace



TECHNICAL DATA

System Performance

Operational range:	> 250 nautical miles
Message processing:	Up to 3000 Extended Squitter messages/s
Target load:	Up to 1500 ADS-B targets
Client systems:	Up to 20 clients
Remote control:	Multiple QCMS/ SNMP manager (V2C or V3)

Mechanical Data

Dimensions (WxHxD):	400 mm x 480 mm x 155 mm
Weight:	Sensor including antenna: 15,4 kg

Receiver

Frequency:	1090 MHz
Attenuation at +/-25 MHz:	≥ 40 dB
Tangential sensitivity:	≤ -90 dBm, measured at video

Power

Input power:	100-260 VAC 50-60 Hz or 24 VDC (+/- 4 V)
Power consumption:	< 10 W
Cooling:	Passive, no auxiliary cooling required

Decoder (ADS-B functionality)

Decoding:	RTCA DO 260, RTCA DO 260A
CRC:	RTCA DO-260
Error correction:	Configurable

Network Interface

Interface:	Ethernet 10/100 autosense
IP-address configuration:	Configurable static IP-address or DHCP
Supported protocols:	TCP/IP, UDP, SNMP, IGMP, NTP, ICMP
Data encoding:	ASTERIX category 21, individual client profiles

Environmental Data

Temperature:	-40 °C to +70 °C
Wind:	up to 100 m/s
Relative humidity:	up to 100 %

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