Patria

ARIS

Advanced Real-Time Intelligence System

ELINT

System Overview

Operating Centre

ELINT database

Wired, wireless or satellite LAN/WAN

Other services

Receiver Processor   Digital IF   Recorder

Microwave channels
V/UHF channels

Antenna Subsystem

Fixed or mobile sensor stations
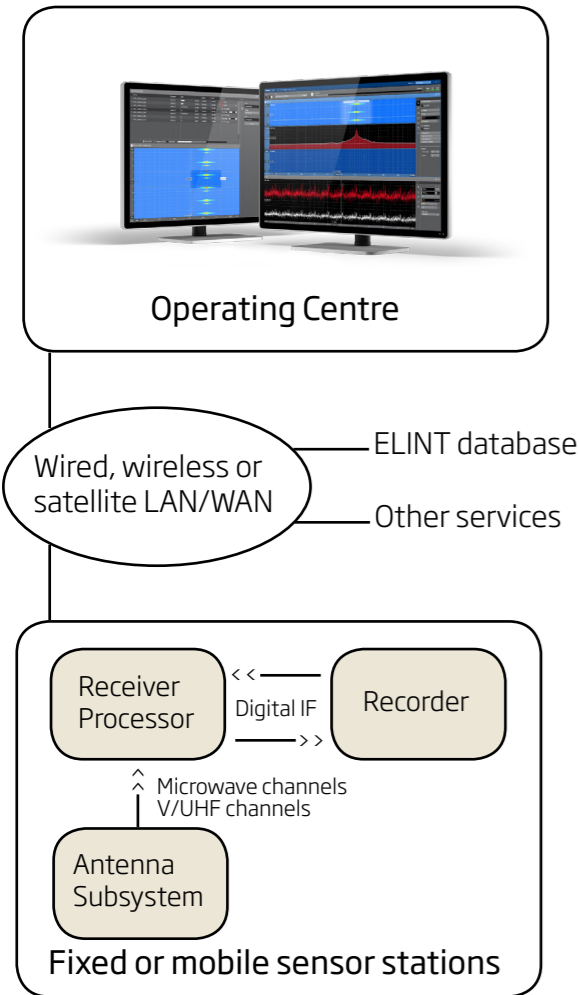
Remote Operability

ARIS is remotely usable from a user interface that is software run on any PC-workstation. Multi-user and multi-sensor operations are supported. The network connection is secured with data encryption, user authentication and access control.

Functionality

Search Spectrum

Search spectrum is used for spectrum surveillance. It gives a quick overview of the full spectrum with several spectrum displays that can be opened for various sub-bands. Due to digital channelisation, it provides enhanced probability-of-intercept combined with good sensitivity.

Real-Time Spectrum Analyser

Real-Time Spectrum Analyser illustrates time frequency content of chosen band with three displays: a real-time spectrum persistence display, a snapshot spectogram and a waterfall spectogram. A dense signal environment with very low SNR frequency sweeps and frequency hopping pulse sequences is easily analysed.

Real-Time Oscilloscope & Modulation Analyser

To analyse a chosen waveform in more detail, AM, FM and PM video signals and pure I/Q can be detected from a chosen sub-band and illustrated with real-time oscilloscope persistence display and with trigger sequence display. With shorter acquisition times, the display can be used to analyse intra-pulse and inter-pulse modulations. Longer acquisition times reveal e.g. beam patterns.

Pulse Analyser

Continuous pulse processing is performed over the whole 500 MHz monitoring bandwidth. The pulse detection is done in channelised manner providing good sensitivity and selectivity. Detected pulses are revealed on a 2D scatterogram, filtering pulses for further analysis displays and exporting to external data files. The pulse sequences are further analysed with time raster display, individual pulse parameter displays and histograms. Intra-pulse modulations of selected pulses can be analysed with the Modulation Analyser.

Recorder

Continuous recording in circular buffer mode enables the user to catch short-lived interesting events. All of the tools available for online signal processing are also available when analysing the recordings with full-speed playback or by manually navigating the recording timeline. Recordings can be cropped in time and frequency and exported from the system. Autonomous mode enables the system to record triggered signal events automatically.

Additional Functions

PRF audio is generated either from wideband detectors or from a selected sub-band and streamed to the user.

Direction finding can be done using a spinning DF antenna or V/UHF monopulse antenna.

Active emitters are automatically recognised based on a mission database and tracked on an active emitter list.

System monitoring and maintenance is assisted with remotely usable built-in test, calibration and hardware management tools. Software upgrades can be distributed remotely.
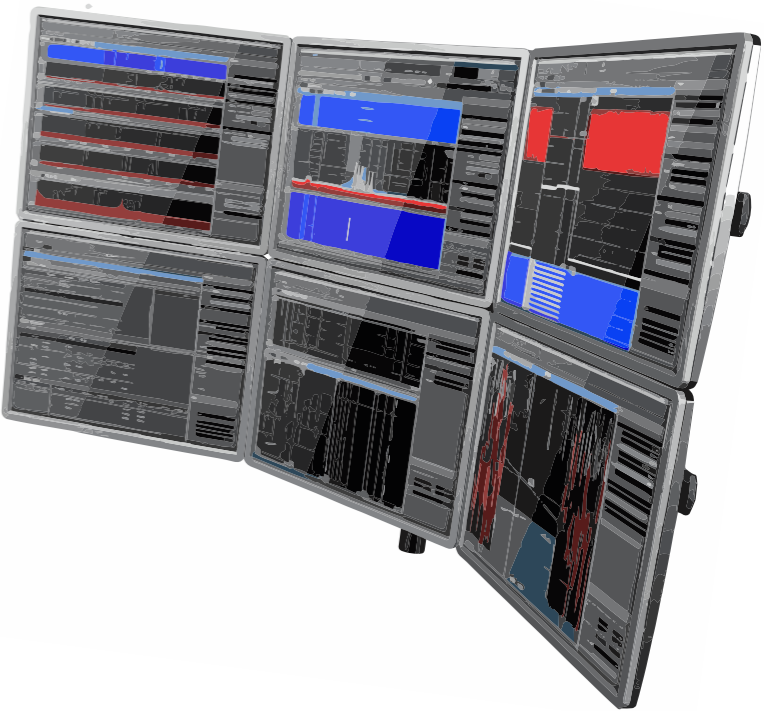
"ARIS is a complete system solution with high-end performance and user experience."

Installations > >

The system installations are available for various vehicle types or for transportable shelters. There is also an open interface for integration to external systems. ARIS can be configured to airborne and shipborne ELINT operations.

ARIS is a remotely operable ELINT system for interception and analysis of modern and increasingly complex signal environment.

It combines all ELINT functionalities: search spectrum, real-time spectrum analyser, real-time oscilloscope, pulse analyser, modulation analyser, direction finding and wideband recorder with playback and offline analysis capabilities. These functionalities are all in a single system offering a comfortable user experience.

All the functionalities can be accessed and operated either locally at a sensor station or remotely from an operating centre. The system can be used manually for detailed signal analysis or it can run predefined surveillance tasks autonomously to record signals for later analysis. Analysis results are input to the ELINT database.

ARIS combines all ELINT functionalities, such as search spectrum, real-time spectrum analyser, real-time oscilloscope, modulation analyser, pulse analyser, direction finder, active emitter list and recorder with autonomous operation capability.

Key Features and Benefits

- Combined ELINT functionalities for comfortable use

Search Spectrum

- Less than 1 ms sweep times possible for 18 GHz band

Real-Time Spectrum Analyser

- BW 100 kHz - 500 MHz
- RBW 50 Hz - 25 MHz
- Up to 17 million frames per second and zero blind time

Real-Time Oscilloscope

- BW 100 kHz -100 MHz
- Up to 2 million acquisitions and less than 100 ns blind time

Pulse Analyser

- Frequency accuracy better than 600 Hz and TOA/PW timing accuracy better than 1 ns for 3 pulses
- Up to 100 million PDWs unblockable pulse processing, recording and analysis capability

Reporting and interfaces

- Operator-driven ELINT and autonomous surveillance modes
- ELINT mission database
- Customisable interface to master database
- Various reporting and file formats
- Open external interface

Receiver Processor

- Two microwave channels (0.5-18 GHz, optionally up to 40 GHz)
- Two additional high dynamic range channels for VHF and UHF (20 - 3000 MHz)
- Standard 19" 10U top loader chassis
- Weight: 55kg (121.3lbs)
- Power consumption: typical 750W

Recorder

- Over 1 hour capacity for 500 MHz band
- Dual-channel recording
- Standard 19" / 3U
- Weight: 32kg (70.6lbs)
- Power consumption: typical 500W

Patria