

AvioScout-Mission

All you need in mission system in a compact housing

Dim: 160 * 160 * 90mm

Weight: 1.5kg

Sun-light readable display

640*480 pix, 700 nits

Integrated GPS receiver

Integrated Iridium modem

Easy to use

Easy to install

Affordable for your budget



AvioScout-Mission

Key Features

- ◆ Easy to use
- ◆ Full situational awareness for pilot and mission control center
- ◆ Compact system
- ◆ Standard 160mm width
- ◆ Simple to install
- ◆ ETSO certified (C113)
- ◆ Affordable for your budget
- ◆ Shorter reaction time
- ◆ Error and workload reduction
- ◆ Better vehicle utilization by avoiding empty flights



AvioScout-Mission is a Digital Mission System optimized for helicopters and for use by law enforcement and rescue operators.

Its primary purpose is to display moving maps and aid in navigation as well as to support the mission with special tailored functions.

One major focus during the design of the system was to make the usage as easy as possible to reduce the pilots workload.



All information in one sight and clearly laid out

Display-fields with important data: track, bearing, distance to WPT

PPOS with direction vector

Terrain overlay

Knob for zoom and brightness

6 Buttons with dynamic legend

USB port for updates

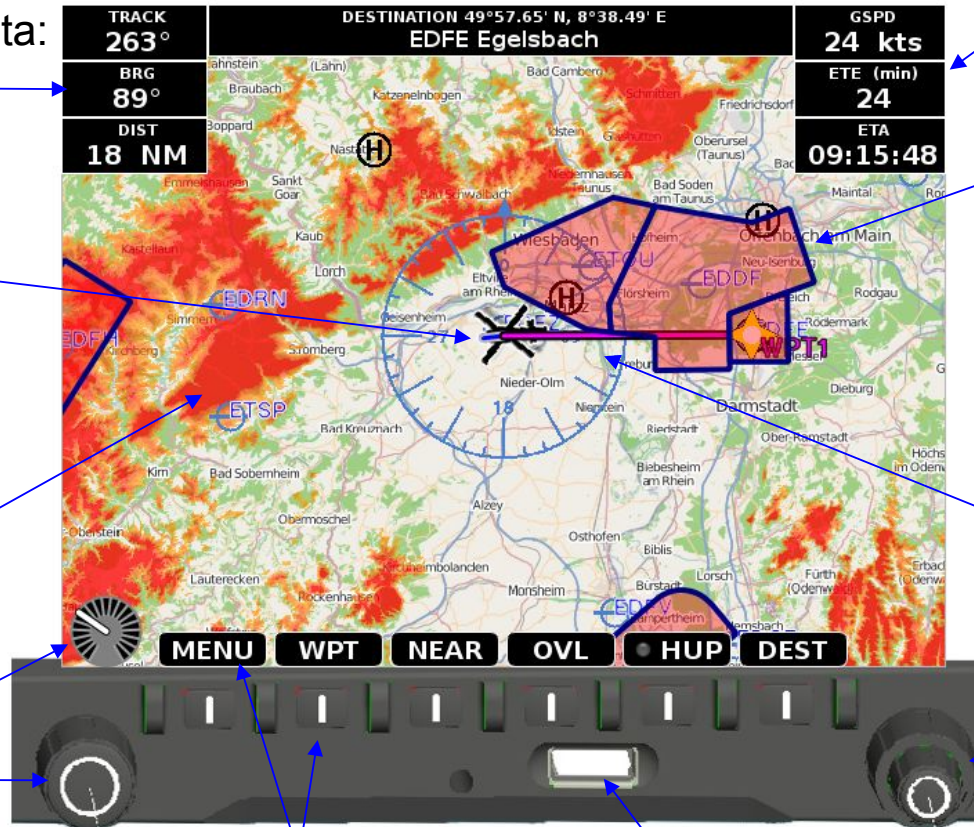
Next waypoint

Ground-speed ETE, ETA

ATC overlay

Line to WPT

Dual-knob X-Y-move and selection



Basic Software Functions

- ➔ Display of pixel maps
- ➔ Display of vector maps, with streets and house numbers
- ➔ Display in North-up or Heading-up mode. Change with the press of a button
- ➔ Simple zoom with rotary knob, with automatic change of map.
- ➔ In Heading-up mode the the present position is shown in the lower third of the display, so more area ahead is visualized.
- ➔ Depiction of speed vector. Its length shows the range for the next two minutes.
- ➔ Recording of flight path (trace). It can be saved and later recalled for display or exported for display and printed for documentation.
- ➔ Display of track, ground speed, bearing ETE and ETA and distance to go.



Waypoints and Routes

- ➔ Address data base with towns, streets and house numbers
- ➔ Date base with airfields
- ➔ User defined POIs can be grouped in arbitrary as many lists as desired.
- ➔ Setting of waypoints using data base, coordinate input or simply be moving on the map.
- ➔ Home function, allows setting of a predefined waypoint with one button.
- ➔ NEAR function to select nearby landing places in case of emergency.
- ➔ MOB (Man Over Board) to store present position and recall them later to set a waypoint.
- ➔ The last 50 waypoints are automatically stored and can be easily recalled.



Overlays

All overlays can easily be switched on and off.

- ➔ ATC (air traffic control) overlay. Showing control zones, etc.
- ➔ Airports
- ➔ Trace (flight path)
- ➔ Terrain height. Terrain higher than the current altitude is colored on the map – a simple HTAWS.
- ➔ FLARM, ADS-B or TCAS targets are displayed on the map if appropriate equipment is installed
- ➔ Obstacle overlay. The operator can create and maintain his own obstacle overlay.

EOS/FLIR-Camera

If a EOS camera is installed and is able to supply the information

- ➔ Line of Sight. The point where the camera is looking at.
- ➔ Field of View. Area the camera is showing
- ➔ Camera picture. The screen can be switched between map and camera display. A small overlay can be shown besides the map.

Radio Direction Finder

If a radio-DF is installed

- Display the direction as a line on the map.



AvioScout-Fleet: Communication and Fleet Management

Using the internal GSM modem or an external Iridium[®]-modem the status information (position, status, route) is sent to a central server.

Mission control stations can access this server from everywhere and see the status of all helicopters.

The communication is two way: The mission control stations can send new missions (text and a destination) to the helicopters.

The pilot just confirms the mission and automatically has the destination set as a waypoint and the new status is sent to the server.

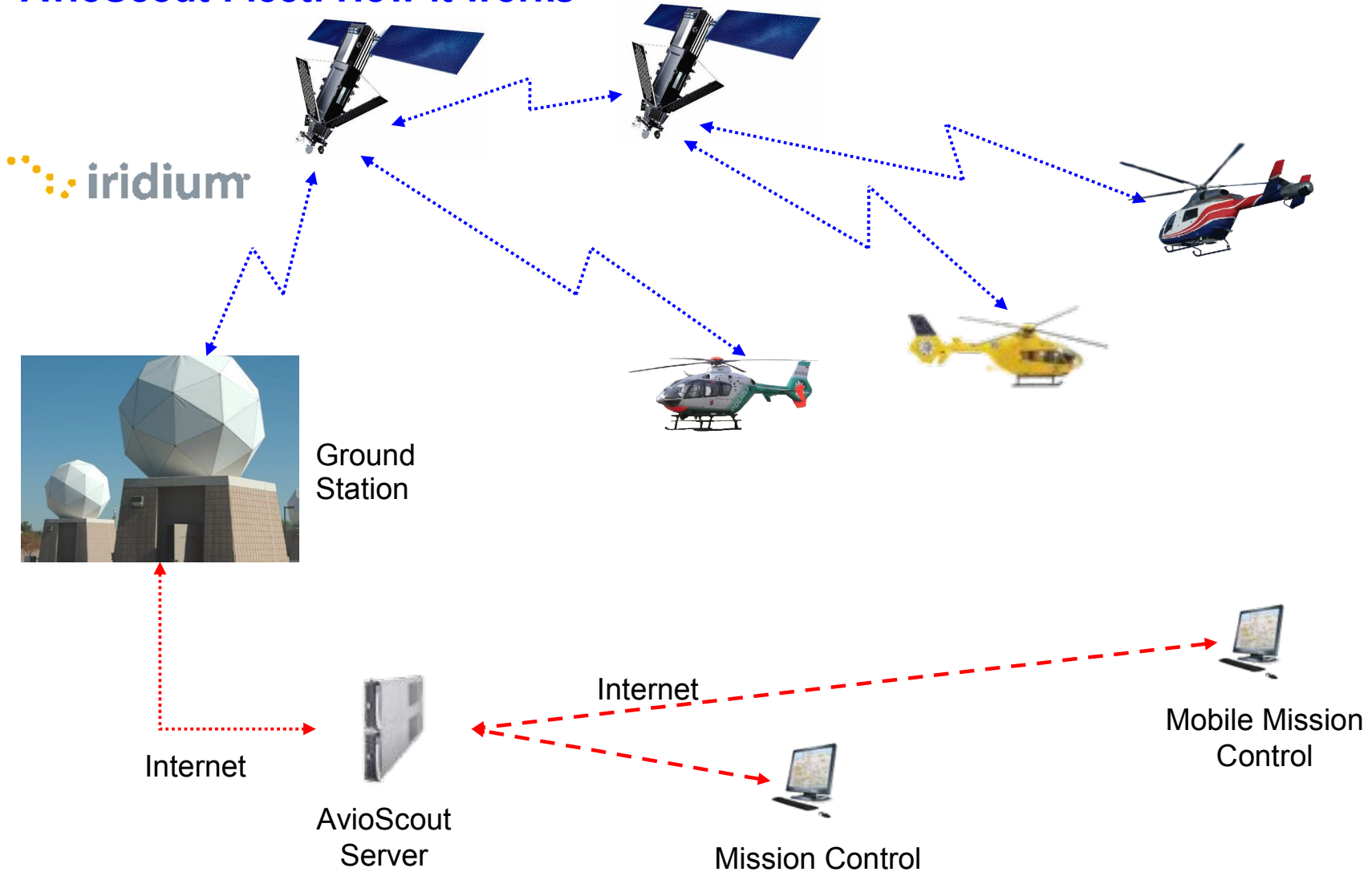
Mission control is thus automatically informed.

No need for error prone voice communication results in reduction of pilots workload and faster response time. Increases efficiency by reducing empty flights.

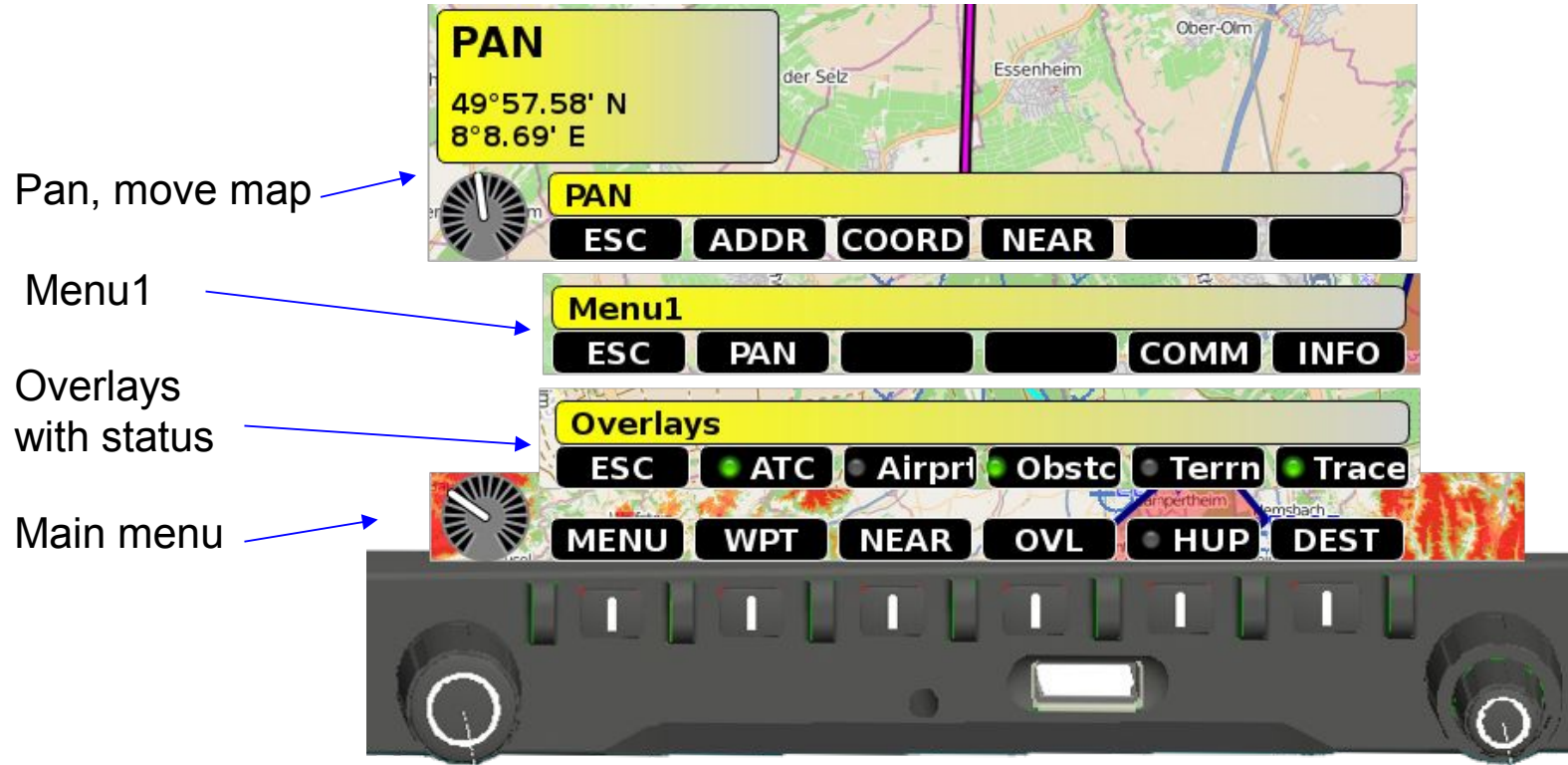
Using the Iridium[®] Satellite Network gives world wide coverage without “holes” and still keeps things affordable: for example a status update every two minutes results in costs of 1.20US\$ per flight hour.



AvioScout-Fleet: How it works



Clear and consistent menu structure



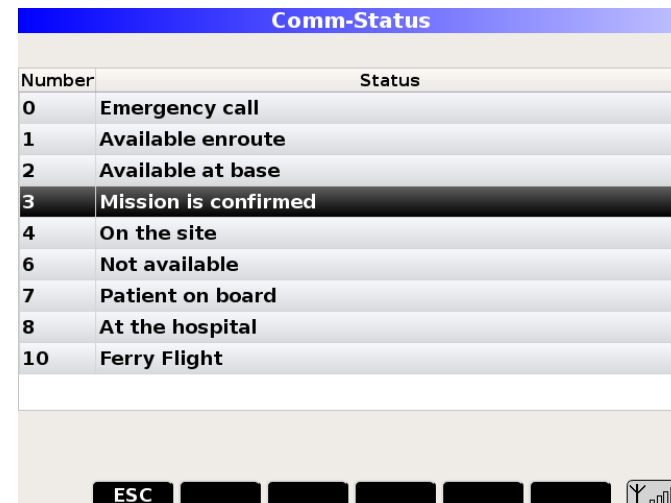
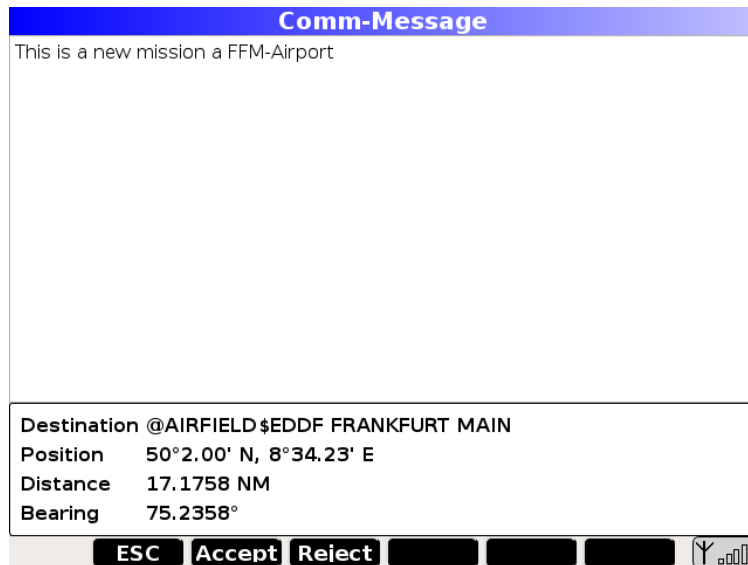
Create a Route with several Waypoints



- 1 Press WPT
- 2 Press Add
- 3 Select sequence in route
- 4 Press ADDR
- 5 Select "Airfields"
- 6 Select Airport EDDH
Ready or repeat for more waypoints



Receiving and Accepting a new Mission



- 1 Yellow symbol indicates new message
 - Press Menu
 - 2 Press COMM
 - 3 Mission text and destination is shown
 - Press Accept
 - 4 Status page is shown
 - Select new status Ready.
- Mission control center is automatically informed.

Summary

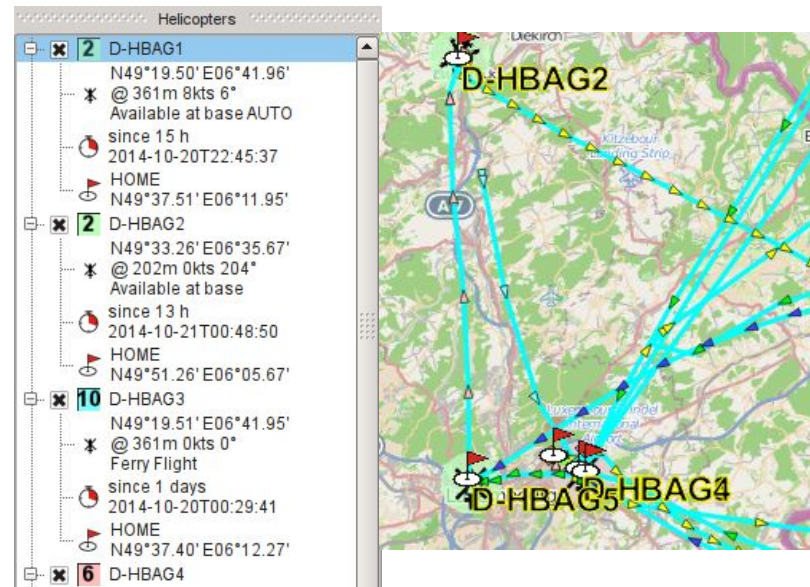


AvioScout-Mission

All you need in mission system

Key features

- ◆ Easy to use
- ◆ Compact system, standard 160mm width
- ◆ Simple to install, only power and GPS antenna for basic system
- ◆ ETSO C113 certification pending,
- ◆ Software DO178 Level D



AvioScout-Fleet

View your vehicles

- ◆ Full situational awareness for pilot and mission control center
- ◆ Affordable for your budget
- ◆ Shorter reaction time
- ◆ Error and workload reduction, safety gain
- ◆ Cost reduction, better vehicle utilization by avoiding empty flights

Ready for your mission and your budget.

Summary cont'd

Why use a Moving-Map-System in a Helicopter?

- ◆ Reduction of pilots workload
- ◆ Pilot knows where he is
- ◆ Pilot knows where control zones are
- ◆ Pilot can easily see the surroundings of the destination and plan where and how to land
- ◆ No searching for addresses, input the destination via the integrated address data base → faster reaction times for emergency missions
- ◆ Situational Awareness increases safety
- ◆ The pilot sees everything with one glance at the screen
- ◆ Pilot has more time to look outside for possible dangers

Why use a Digital-Mission-System in a Helicopter?

- ◆ Digital-Mission integrates more than maps
- ◆ Terrain-height display gives better situational awareness, helps to find routes in mountainous regions
- ◆ TCAS/FLARM/ADS-B shows possible dangerous traffic, helps to keep the overview in multi-helicopter missions
- ◆ EOS camera Line-Of-Sight display eases communication with ground forces about positions
- ◆ Integration of PLB locator eases rescue-missions
- ◆ Even more Safety and workload reduction

Summary cont'd

Why use an AvioScout-Mission in your Helicopter?

- ◆ AvioScout-Mission is made for helicopters, no one size fits all solution for general aviation
- ◆ User-Interface is optimized for fast easy to use operation, no long learning curve, can be used without much training
- ◆ Display usable during full sunlight and at night
- ◆ Controls (button, knobs) have a good haptic feedback.
- ◆ Reaction is fast, you feel and see immediate response
- ◆ Integration of AvioScout-Fleet, fleet management via GSM and Iridium
- ◆ Operator can maintain waypoint lists
- ◆ Operator can maintain obstacle data
- ◆ Flight recording with Trace function and archiving
- ◆ Easy installation, the basic system is just one box, needs just 28V-power and a GPS antenna.

Why use AvioScout-Fleet

- ◆ Fleet management gives mission control full awareness of status and position of all helicopters (and possibly all ground vehicles)
- ◆ Using GSM and Iridium gives full regional coverage, no dead spots without connection
- ◆ Digital transmission of destination data removes error prone voice communication
- ◆ Pilot does not need to care about entering destination position or informing mission control about destinations and accepted missions. This happens automatically.
- ◆ Even with Iridium minimal costs (1 to 2 US\$/flight hour, depending on update rate)
- ◆ Cost reduction
- ◆ Mission control can schedule more active flights, less empty flights
- ◆ Full awareness allows to select to nearest available vehicle
- ◆ Access from everywhere, even temporary mobile mission controls are possible for special missions
- ◆ Automatic flight logging on a central server

Ready for your mission and your budget.

Outlook and Roadmap

Hardware

- Integrated GNSS receiver supports simultaneous GPS, GLONASS and Beidou (already done)
- Integrated Iridium modem (already done)
- Full NVG compliant design
- Integrated ADS-B-In receiver
- Integrated AHRS
- Integrated compass

Software

- Support for Becker (P)BD406 COSPAS/SARSAT Beacon Decoder
- PFD functions integrated
- Video processing
 - Augmented reality overlay over EOS video, showing i.e. streets with names for easier orientation
 - object following
- Cross link with second system for redundancy
- More mission planning and support
- Data link to mobile equipment

Supported Interfaces

- TCAS:
 - Ryan 9900 or standard ARINC-429
- FLARM:
 - Butterfly (standard FLARM protocol)
- ADS-B
 - Garrecht TRX2000 (with or w/o FLARM)
- FLIR/EOS:
 - FLIR Ultraforce (in DKG4 mode) for Line-Of-Sight
 - WESCAM MX for Line-Of-Sight and Field-Of-View
- FLIR/EOS video:
 - any NTSC or PAL input
- Radio-Direction Finder:
 - Datong DF5
 - Rhode&Schwarz
 - Becker BD406
- ARINC-429 for AHRS, TCAS, FMS

Support for others can be implemented on request if a interface specification is supplied.