SAAB

IDAS/CIDAS RANGE OF INTEGRATED DEFENSIVE AIDS SUITES

SELF PROTECTION FOR AIRBORNE PLATFORMS

The latest Saab Compact Integrated Defensive Aids Suite, CIDAS, is one in a suite of advanced systems designed to provide EW self protection for airborne platforms in sophisticated, diverse and dense threat environments.

The IDAS/CIDAS family includes the CIDAS and IDAS-3. The IDAS/CIDAS of today is a further evolutionary progres-sion of the original Saab concept to produce the worlds first fully Integrated Defensive Aids Suite, IDAS-1, which provided multi spectral radar, laser and missile warning with automatic countermeasures decoy dispensing.

CIDAS is the small and light weight variant with only electro-optic sensors and a smaller controller. It is designed for the protection of aircraft against Man Portable Air Defence Systems, MANPADS, and laser based threats, many of which are encountered in the currently prevailing peace keeping environment.

IDAS-3 is the high-end system which can be configured with laser warning, and missile approach warning, as well as the full multi-spectral detection capability for radar; including a Saab digital receiver, DRx, as an option.

Both variants are fully integrated with BOP-L, Saab's new advanced lightweight countermeasures dispensing system. The modular system architecture allows IDAS/CIDAS to be configured for any combination of the three sensor system types. IDAS and CIDAS offer a cost effective defensive aids suite providing exceptional performance in a lightweight fit for a wide variety of aircraft.

SYSTEM FEATURES

- Modular flexible architecture allows tailoring of the system to user requirements with any of the sensor types.
- Multiple interfaces (Ethernet, MIL-STD 1553B, ARINC 429, RS 232, RS 422 and RS 485) and low box count allows easy installation in helicopters, transport aircraft and fighters.
- Human-Machine Interface via dedicated full colour Threat Display & Control Unit, TDCU, 3 inch displays or existing onboard colour Multi Function Display, MFD, as well as audio signals.
- Improved Processing Power (DSP's and Power PC's) utilising Commercial Off the Shelf, COTS, processors.
- Extensive built-in-test capability.
- User definable threat symbology.
- Flight-line software upload/download via external data loader interfaces.
- Configurable Secure modes of operation in terms of operational software and libraries.
- Different threat libraries can be selected in flight according to mission type and/or geographical area.
- Bulk recording via Ethernet link to external data storage device.
- Post Mission Playback and analysis facilities by means of Flight Data Analyzer, FDA.
- Comprehensive EW Data Management System.

Radar warning function, RWS-300

The Radar Warning Function features a compact, wide band, high sensitivity with high probability of intercept, POI, solution. The addition of an optional Digital Receiver, DRx, transforms the Radar Warning Functionality into a full-fledged ESM system.

Dual Front End Receiver 300, DFER300

RWS-300 FEATURES

- High sensitivity with full capability to simultaneously handle pulsed and CW radars.
- Internal wide band IFM.
- Digital Video Processor provides high accuracy DF, pulse-on-pulse handling and intra-pulse measurements.
- Near 100% Probability of Intercept, POI.
- Frequency coverage 0.7-40 GHz (pulsed signals), 0.7-18 GHz (CW signals).
- Spatial coverage 360° AZ over the full frequency range with four antennas. Full spherical coverage can be achieved with six sensors.
- Optional Digital Receiver enhancing sensitivity, emitter identification, simultaneous CW handling capability and DF performance.
- Use of INS dramatically improves range measurements, minimises symbol "duplication" or "splitting" under dynamic platform manoeuvring and enables intercepted weapon system localisation.

0.7-40 GHz Spiral Antenna Module, SAM

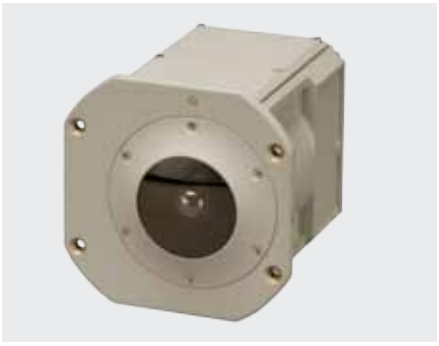
Laser warning function, LWS-310

The Laser Warning Functionality is achieved by using four (4) LWS-310 Sensors and a Processor Card in the Electronic Warfare Controller, EWC. It features high sensitivity, excellent Threat Coverage and exceptional Probability of Intercept, POI, for single- as well as multi-pulse emissions. A unique feature of this system is that it not only classifies laser emissions but can also identify laser emission through a User Programmable Threat Library.

LWS-310 FEATURES

- Wavelength coverage of 0.5-1.7 µm.
- Provides threat classification and direction finding indication of laser range finders, designators, lasers used for missile guidance and dazzler lasers.
- Identify specific lasers if threat library information is available.
- High sensitivity to detect missile guidance lasers.
- High probability of intercept.
- Low false alarm rate.
- Spatial coverage 360° AZ with four sensors including good sensor overlap.
- Direction finding to allow appropriate manoeuvring to break operator's line of sight and counter threats.
- Provision for up to six (6) sensors for improved large platform coverage.

LWS-310 Sensor



MAW-300 Sensor

Missile approach warning function, MAW-300

A unique optical design, incorporating filter technology, with purpose-built image intensifier tubes and photon-counting focal-plane array processors ensures high sensitivity equating to long detection range. Each sensor uses a dedicated digital signal processor making use of a distributed, hierarchical data-processing architecture to ensure optimal utilization of information in real-time. Digitization and pre-processing functions are performed at the detector using an advanced focal-plane processor. Each sensor's data is transferred to a dedicated digital signal processor (MAW Controller) resident in the Electronic Warfare Controller, EWC, which performs equalization, segmentation and feature extraction. Each sensor processor can detect and process multiple potential targets, passing the spatial and temporal feature data to the processor card in the EWC where spatial data is integrated with real-time INS information to compensate for platform movement, attitude and altitude. The MAW Controller then executes neural net pattern recognition algorithms to ensure accurate operation with very low false alarm rates.

MAW-300 FEATURES

- Passive Ultra Violet (UV) based sensors, which operates in the solar blind UV spectrum.
- Neural net classifiers using both temporal and accurate spatial information as well as compensation of own platform movement, ensures low false alarm rates.
- Reaction time optimized by keeping missile time to impact constant, irrespective of range to ensure enhanced flare countermeasures effectiveness.
- Inhibits warning against diverging missiles.
- Direction accuracy suitable for cueing DIRCM and dispensing of countermeasures decoys in correct direction.
- Spatial coverage of 110° conical per sensor limits unprotected "hole" below platform and allows good sensor overlap.
- Spatial coverage of 360° AZ with 4 sensors. Full spherical coverage can be achieved with six sensors.
- Provision to add up to eight sensors to ensure hemispherical or full spherical coverage.
- Multi-threat capability allows tracking of multiple targets simultaneously.
- Near 100% probability of warning.
- In production for numerous platforms.
- Field tested and qualified against various missiles including live missile firings under in-flight dynamic conditions.
- Compact, lightweight, low power, no cooling, skin mounted sensors.

Countermeasures dispensing function (BOP Series)

The BOP-L dispensers are controlled via a fully integrated Chaff and Flare Dispenser Controller that resides in the Electronic Warfare Controller, EWC. This allows for automatic dispensing under the control of the EWC upon threat identification. The system can handle mixed payloads per dispenser, i.e. chaff and flares mixed in each dispenser. Semi-automatic and manual firing capability is also provided.

User-defined dispensing programs/sequences are selected by the EWC per identified threat. The dispensing techniques can be defined in the Threat Library for the EWC and uploaded to the system on the flight-line.

The jettison of all payloads is possible in all modes of operation under emergency conditions.

BOP-L FEATURES

- Numerous safety features inherent in design (functional and personal safety).
- Modular and compact design.
- User programmable dispensing sequences.
- Low weight
- Payload mix recogition, misfire detection and compensation.
- Programmable back-up mode in the event of system degradation.
- Easy installation and removal.

BOP-L Dispenser

GROUND SUPPORT EQUIPMENT

EW data management system (EGSS)

Operating System independent with GUI based application design. It consists of two main applications namely; EWLib and EWTac.

The EWLib provides the capability to compile and export pre-flight data to the installed system. This includes emitter parameters for known emitters, regions where emitters will be classified as unknown, countermeasure programs and techniques for threats.

The EWTac provides the capability to perform mission debriefing by the analysis of flight event data recordings including for example Threat Display and Control Unit playback, simulation, tracking analysis, flight path analysis and Built-In-Test analysis. As an option, a module called EWTech is also available for the detailed analysis of recorded EW related data.

Flight line test equipment

IDAS/CIDAS is supported by appropriate flight line stimulators for each type of sensor and Chaff and Flare Test Blocks, CFTB, for the dispensers. The flight-line test equipment is used to verify system serviceability prior to missions. Test equipment has been developed in cooperation with RUAG.

Test equipment

Automated O and I level test equipment is also available and can be supplied in accordance to customer's logistic support requirements.

missim, one tester for all sensors (from RUAG)

TECHNICAL DATA

CIDAS PHYSICAL AND POWER CONSUMPTION CHARACTERISTICS

Unit	Dimensions (mm)	Mass/Unit (kg) - typical	Quantity	28 V DC Power Consumption/Unit (W) - typical
EW Controller (EWC100)	163X124x195	4.5	1	35
LWS-310 Sensor	115x90x76	1.0	4	4
MAW-300 Sensor	134x130x130	2.0	4	8.4
TDCU (Optional)	128x127x120	2.0	1	28
BOP Series [3]	236x128x60 [2]	<2 [1]	Up to 32	14

CIDAS system

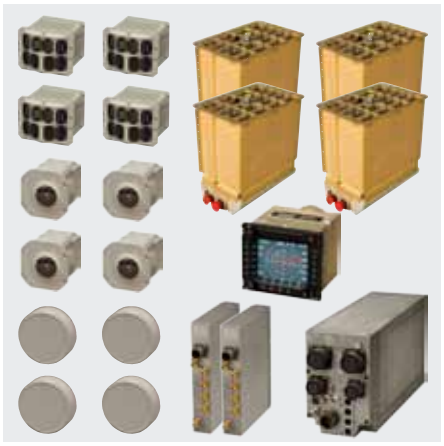
IDAS-3 PHYSICAL AND POWER CONSUMPTION CHARACTERISTICS

Unit	Dimensions (mm)	Mass/Unit (kg) – typical	Quantity	28 V DC Power Consumption/Unit (W) - typical
EW Controller (EWC300)	193x359x124	10.0	1	100
RWS-300 Dual Front End Receiver	170x40x220	2.5	2	30
RWS-300 0.7-40 GHz Spiral Antenna	110x110x67.5	0.5	4	5
LWS-310 Sensor	115x90x76	1.0	4	4
MAW-300 Sensor	134x130x130	2.0	4	8.4
TDCU (Optional)	128x127x120	2.0	1	28
BOP Series [3]	236x128x60 [2]	<2 [1]	Up to 32	14

1) These weights exclude payload and magazine.

2) These heights exclude the magazine height which is 210 mm.

3) This is an example of one of the BOP Series dispensers.



IDAS-3 system

Specifications subject to change without notice

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