COMPLETE SELF-PROTECTION SYSTEMS

FOR ALL TYPES OF AIRCRAFT

TERMA

ALLIES IN INNOVATION

Complete Mission Protection

For over 40 years, Terma has helped bring aircrews and their aircraft home safely. Today, defense forces and organizations worldwide view our advanced Aircraft Self-Protection Systems as the most effective and affordable solutions on the market.

- **Aircraft Self-Protection Systems** – operationally proven, integrated solutions for managing subsystems through a unique user interface
- **Applied Aerostructures** – podded, pylon, and scab-on solutions that reduce system integration time and costs and quickly bring individual aircraft to mission-ready status

Terma's self-protection systems safeguard over

2,500

fixed and rotary wing aircraft worldwide

Complete System Control

Aircraft Self-Protection Systems

Terma is a leading integrator of Self-Protection Systems for all types of aircraft. Our advanced solutions give complete, intuitive control over any combination of subsystems, reducing aircrew workloads and delivering operationally proven performance and reliability.

We offer service tailored to your needs and focused on delivering against strict budgets and timeframes.

ALQ-213 Electronic Warfare Controllers
Our latest generation of the proven ALQ-213 EW controller offers versatile and independent EW controller solution for any aircraft or combination of subsystems and come with state-of-the-art mission optimization tools for planning, recording, training, and post-flight analysis.

- Supports international aircraft platforms
- Provides fleet-wide software commonality
- Provides firewall between aircraft avionic interface and sensor suite
- Low system integration and life cycle costs
- Available through U.S. Foreign Military Sales (FMS) and Direct Commercial Sales (DCS)

Advanced Countermeasures Dispenser System (ACMDS)
Our trusted ACMDS provides advanced operational capabilities and enhanced reliability while retaining our highly competitive prices.

- Form-fit compatible with legacy Terma and AN/ALE-47 dispenser systems (no Group-A changes)
- Fully in-country organic reprogrammable
- Compatible with the latest intelligent decoys
- Class-leading operational capabilities

AN/ALQ-213 Family
Self-Protection Controller family (AN/ALQ-213)

ACMDS
Advanced Countermeasures Dispensing System

‘On-the-fly’ Threat Simulations

Our Self-Protection Systems include a unique Embedded Training functionality to train aircrew skills during daily missions. Using built-in software, users can simulate threat scenarios at any time during flight, saving test range costs and creating a more realistic training environment.

Shorter Development Times

Terma has a proven record of developing, qualifying, and delivering tailored Self-Protection Systems within only 3-6 months. Typically, such a program could take 2-3 years.

3-6 MONTHS

Enhanced Situational Awareness

3D-Audio & Active Noise Reduction

Terma is the only supplier of combat-proven operational **3D-Audio** and **Active Noise Reduction** (ANR) technology that reduces stress and enhances operational effectiveness through dynamic spatial audio cues that highlight the precise direction of attack.

As a standalone product or part of an integrated Self-Protection Systems suite, the AAMS is compatible with any type of aircraft and includes a range of techniques for improving sound quality and speech intelligibility:

- **Digital Intercom** – upgrades sound quality for analog systems
- **Active Noise Reduction** – removes stressful ambient cockpit noise such as from environmental control systems
- **Electrical Noise Reduction** – eliminates distracting interference from the aircraft's electrical circuits
- **Directional radio separation** – reduces workload by helping the aircrew to distinguish between radio sources
- **360° dynamic threat cues** – enables the aircrew to locate and react faster to incoming threats.

Fielded since 2009 by the Danish Air Force, Terma's 3D-Audio/ANR technology is proven to improve aircrew and aircraft effectiveness and survivability through:

- Improved reaction times in threat situations
- Enhanced situational awareness
- Reduced pilot workload
- Less stress and fatigue
- Better speech intelligibility

> ***"When on a mission, the workload is tremendous. The stakes are high, and the pilot needs to stay 100% alert; mitigating allunnecessary disturbances is key to a successful flight performance. Over Libya, we had a small force but with a huge effect. Besides a pool of very skilled F-16 pilots, the achievement was partly due to the working environment of our F-16s and the 3D-Audio and Active Noise Reduction systems installed in these aircraft. "***
>
> - Major H.P. Bagger, F-16 pilot, RDAF

3D-Audio Control Panel
Easy-to-use audio control panel and intuitive intercom display

Enhanced Interphone Amplifier
Form-fit F-16 digital intercom solution is simple to install on all aircraft

Headset Assembly
Robust, form-fit HGU-55/P and JHMCS noise reduction headset

Aircrew Helmet
Terma headset assembly can be adapted to any air crew helmet

Complete System Control

Advanced Threat Display

Full color multifunction threat display for all types of military aircraft
The Advanced Threat Display (ATD) is a 3ATI dedicated self-protection display with the capability of providing a real-time correlated threat environment picture to the pilot.

The ATD Option Select Buttons on the front bezel make the display a single point control panel for the operation of the entire self-protection suite of subsystems, saving real estate in the cockpit, and providing a capable intuitive user interface to the pilot. Different page views can be selected by the user in order to format the requested data and present views for each operational mode.

The display is based on LCD technology with impressive characteristics such as excellent sunlight performance and night vision capabilities.

Technical description
The ATD design is based on a modular concept allowing for a family of configurations with different data interfaces and front bezels to accommodate optimal installation in specific cockpit environments.

Baseline design of the ATD utilizes powerPC controller design for advanced display functions.

ATD interfaces allow for operation either as standard display (digital video from external source), as intelligent display with only data interface to external world, or even as controller for, e.g. a chaff/flare dispenser and a Missile Warning System.

ATD
Advanced Threat Display

Programmable Interference Blanker Unit

Avoid signal interference
A Programmable Interference Blanker Unit (PIBU) is a system for use with transmitters and receivers on an aircraft. The main purpose is to prevent interference from these technologies' signals when operating on the same frequencies. This is achieved by creating blank suppression signals which disable and protect sensitive receivers during strong transmissions.

The necessity for a PIBU stems from the numerous receivers and transmitters onboard a military aircraft. This can be radios, radars, jammers, and other electronic warfare systems, where degraded performance would be a serious problem unless corrective action was taken. As an example, the PIBU will shut down the Radar Warning Receiver as long as jamming takes place. Since receivers are being blinded when blanking is in effect, it is essential that the duration of the blanking is minimized.

Easy to program
We provide the software to easily (re)program your PIBU from a standard laptop PC so that it is always adjusted to the specific systems on your aircraft. This way the PIBU can easily be reprogrammed in accordance with upgrades or changes in aircraft configuration.

Flexible and future-proof
The Terma PIBU is market leading when it comes to the number of interfaces which makes it very flexible and future-proof because it will be able to accommodate almost any system you may want to install on the aircraft in the future. Unlike some other Interference Blanker Units, the Terma PIBU is system agnostic. This means that it integrates sensors and transmitters regardless of manufacturer, allowing you to select freely the systems that best fit your needs.

In the latest version of Terma PIBU we have incorporated a new unique feature. This is the programmable Internal Pulse Generators that allows for "Receiver Look Through". This means that the PIBU can send a signal to your aircraft's own radar jammer to pause for a few milliseconds allowing your sensors to listen effectively.

PIBU
Programmable Interference Blanker Unit

Complete Operational Flexibility

Applied Aerostructures

Terma is the only systems integrator that also specializes in Applied Aerostructures, enabling the rotation of subsystems across the fleet rather than fixed installations on each aircraft. This 'mix and match' approach significantly lowers hardware and system costs, and allows for a higher degree of operational flexibility.

Our pods, pylons, scab-ons, and fuselage installations can be customized to contain your existing equipment or, better yet, pre-integrated with Terma subsystems to avoid integration issues that often arise when using separate suppliers.

- Optimized solutions for the structural integration of subsystems
- Shorter lead times due to modular design
- Cost-effective way to introduce new subsystems, sensors, and countermeasures
- Fast and simple method of making specific aircraft mission-ready

NH90 MASE Pod Installation
Modular Aircraft Survivability Equipment (MASE) Pod mounted on dedicated NH90 Pod carrier.

Mission Adaptability and Role Fit

By integrating various sub-systems to individual aircraft, as and when needed, they can be quickly and cost-effectively adapted for specific missions and applications.

Minimize Costs and Risks

We are the only supplier to offer 'one stop shop' integration of Aerostructures and Self-Protection Systems. This unique approach helps you to reduce development times, lower costs, and improve system reliability.

1 STOP SHOP

Fuselage Installation
Helicopter fuselage installation with chaff/flare dispensers

Pylons
F-16 modified pylon with chaff/flare dispensers and missile warning system

Pods
Transport aircraft pod with chaff/flare dispensers and missile warning system

Scab-on
Helicopter scab-on with chaff/flare dispensers

Pods
Helicopter pod with chaff/flare dispensers and missile warning system

Scab-on
Transport aircraft scab-on with chaff/flare dispensers

Fighter Platforms

F-16

F-16 Blk 60

A-10

Tornado

F-35

Archangel

F-16

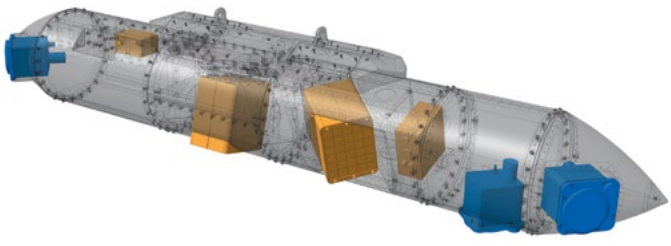
F-16 Pylon Integrated Dispensing System (PIDS+)
Each pylon contains three UV missile warning sensors and two chaff/flare magazines. Full weapons carrying capability is retained.

Tornado

Modular Countermeasures Pod, MCP for Tornado aircraft
The pod contains six UV missile warning sensors and eight chaff/flare magazines.

Archangel

Modular Aircraft Survivability Equipment
The system consists of a Terma ALQ-213 Electronics Warfare Management System (EWMS), the Missile Warning System (MWS), and the Countermeasures Dispensing System (CMDS).

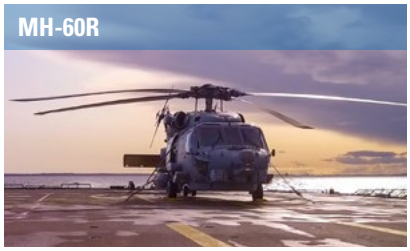


Helicopter Platforms

Fennec

Cougar

MH-60R



EH-101

Apache

NH90

CH-47D/F Chinook

Chinook Aircraft Survivability Equipment, CHASE
Two pods, one on each side of the fuselage, are each equipped with three UV missile warning sensors and one DIRCM unit. This provides 360 deg spherical coverage against incoming IR missiles. Mounting of sensors and DIRCM in the same pod eliminates inaccuracies caused by fuselage torque during maneuvering.

AH-64D Apache

Apache Modular Aircraft Survivability Equipment, AMASE
Each helicopter has two pods mounted on the stub wings. Each pod holds two chaff/flare magazines and three UV-based missile warning sensors providing 360 deg spherical coverage against incoming threats. Each AMASE pod can host a DIRCM unit, RWR, MWS, and HFI.

AS 550 Fennec

Fennec Aircraft Survivability Equipment
Fully integrated, certified, and ready for deployment within six weeks.

Transport & ISR Platforms

C-160

C-130J

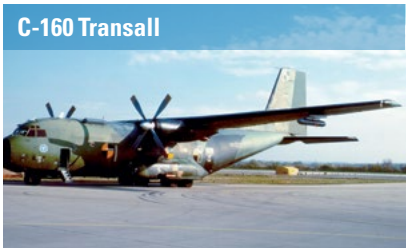
C-130H

Falcon 2000

Fokker 60

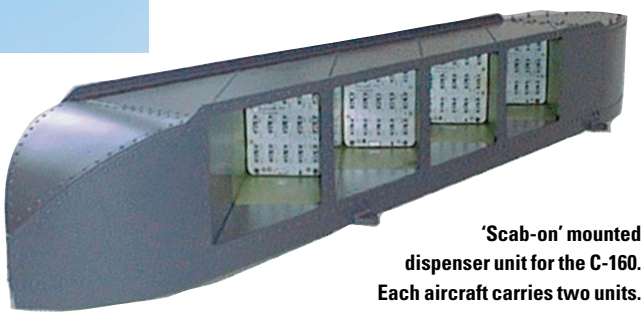
P-8A

C-160 Transall



On the C-160 Transall, sensors are installed in the fuselage. The chaff/flare capacity has been increased to a total of 36 magazines. Two underwing **Modular Countermeasures Pods, MCP-10** each contains ten magazines and two 'scab-on' mounted units each containing four magazines. The original eight fuselage mounted magazines are retained.

Modular Countermeasures Pod, MCP-10



'Scab-on' mounted dispenser unit for the C-160. Each aircraft carries two units.

RNLAF C-130

EW Integration Reference List

CounterMeasures Dispensing System (CMDS)
- ACMDS
- ALE-47

Radar Warning Receiver (RWR)
- ALR-56M
- ALR-68
- ALR-69 DK(V)2 / C4 / LSIP
- ALR-69 A
- ALR-400
- APR-39B(V)2
- SPS-1000(V)5
- CATS-100
- CARAPACE/KRP
- SEER/SAGE

Electronic CounterMeasures Jammer (JMR)
- ALQ-119/-184
- ALQ-131
- ALQ-162(V)1/(V)6
- ALQ-176
- ALQ-184(V)9
- EL/L-8222
- EL/L-8212
- ALQ-211 (V) 9

Towed Decoy System (TDS)
- ALE-50 (integrated via ALQ-184(V)9)
- ALE-50(V)2

Missile Warning System (MWS) - Active
- EL/M-2160

Missile Warning System (MWS) -Passive
- AAR-44
- AAR-47
- AAR-54
- AAR-57
- AAR-60 MILDS
- AAR-60(V)2 MILDS-F
- PAWS-II

Laser Warning Receiver (LWR)
- ALTAS-2QB
- AVR-2B

Infra-Red CounterMeasures (IRCM)
- COMET
- ALQ-144A

Directed Infra-Red CounterMeasures (DIRCM)
- AAQ-24
- ELT/572

Operating in the aerospace, defense, and security sector, Terma supports customers and partners all over the world. With more than 1,900 committed employees globally, we develop and manufacture mission-critical products and solutions that meet rigorous customer requirements.

At Terma, we believe in the premise that creating customer value is not just about strong engineering and manufacturing skills. It is also about being able to apply these skills in the context of our customers' specific needs. Only through close collaboration and dialog can we deliver a level of partnership and integration unmatched in the industry.

Our business activities, products, and systems include: command and control systems; radar systems; self-protection systems for ships and aircraft; space technology; and advanced aerostructures for the aircraft industry.

Terma has decades of hands-on know-how in supporting and maintaining mission-critical systems in some of the world's most hostile areas. Terma Support & Services offers through-life support of all our products to maximize operational availability, enhance platform lifetime, and ensure the best possible cost of ownership.

Headquartered in Aarhus, Denmark, Terma has subsidiaries and operations across Europe, in the Middle East, in Asia Pacific as well as a wholly-owned U.S. subsidiary, Terma Inc., with offices in Washington D.C., Georgia and Texas.

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