DEFENSE AND SECURITY

MK-XII/A IFF TRANSPONDERS

Defense and security in five continents

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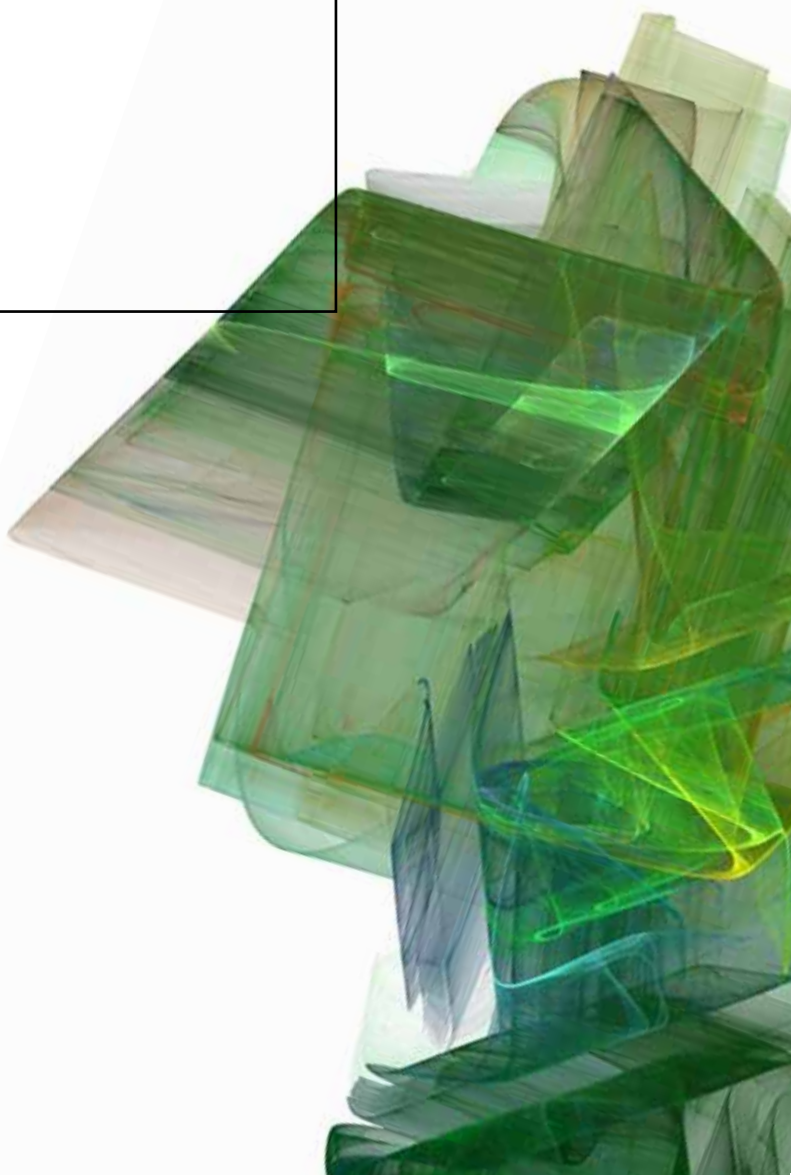


TXP-2000
TXP-2000N
TXP-25S5

MK-XII/A IFF TRANSPONDERS

TXP-2000

A new family of transponders has been developed to satisfy the latest requirements in IFF systems and ATC

MK-XIIA IFF transponders

These transponders include all military and civil modes: modes 1, 2, 3/A, C, 4, S and the advanced Mode 5.

This family is mainly integrated by the TXP-2000, the TXP-2000N and the TXP-25S5. These equipments have the same package, but different functionality. The dimensions are ARINC 600 - 4 MCU.

Mode 5

Mode 5 is the latest and most advanced combat identification mode currently available.

Mode 5 presents significant operational, security and performance improvements with respect to the alternatives modes: better use of available bandwidth, new cryptographic algorithms, increased probability of identification and improved performance in presence of interferences. NATO has announced that in the near future, all allied platform operating in a conflict area must fit IFF Mode 5 functionality.

The TXP-25S5 supports Mode 5, up to Level 2 and squitter.

Mode 5 benefits

Robust to interferences and intelligent jamming

Significantly enhanced security to avoid exploitation

Highly confident ID, reducing casualties and fratricide

New cryptographic algorithms and security features with Time of Day (TOD) authentication

Enhances the battlefield's situational awareness

Maximum military effectiveness

Compatible with Air Traffic Control systems

Mode S

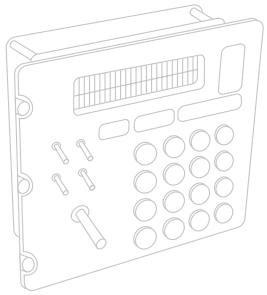
Mode S is the civil mode intended to provide aircraft surveillance and communications, necessary to support air traffic control.

The family of transponders includes Mode S up to level 3, that implements all necessary functionality for Basic and Enhanced Surveillance (EHS). It provides unique aircraft identification, enhanced Mode C height resolution and flight details through the transmission of Downlink Aircraft Parameters (DAPs).

RCB-25S5 / RCB-25A / RCB-25N remote control box

The transponders can be operated via either dedicated control unit or via any standard communications bus (MIL-STD-1553, ARINC429, RS485 or RS232).

The operation with the RCB-25S5 allows selecting the modes and codes of operation to be transmitted and also provides all the controls and indications necessary for the transponder operation. The operation through the RCB-25A or RCB-25N provide backup control of the transponder.



Modular architecture

The family of transponders is based on a modular architecture, in order to facilitate the adaptation to new platforms and the inclusion of new operational requirements.

The extensive use of standards interfaces and off-the-shelf components has allowed reducing the development time and including spares for future features.

The transponders can be fitted with a Mode 4, Mode 5, or Secure Mode crypto appliqué. The interfaces supported are Ethernet, dual MIL-STD-1553B, RS-485, ARINC 429, RS-232 and others.

Technology

The modular solid-state design including extensive use of state of the art Microprocessors, Digital Signal Processors (DSP's), Field-Programmable Gate Array (FPGA) technology and integrated Built-in-Test (BIT) provides maximum reliability, maximum flexibility and easy maintenance.

Built-in test

The integral BIT functionality eliminates the need of scheduled preventive maintenance activities. It detects equipment failures and tests external interfaces (antennas, communications, altimeter and cryptographic unit).

The BIT results are available on the data bus and some failures are also available at the remote control box.

Main features

Modes 1, 2, 3/A, C, 4

Mode S Level 1, 2 and 3 and extended squitter

Growth to Mode 5 Level 1, 2 and squitter

Appliqué crypto for Mode 4 and Mode 5 operation

Hardware-provisioned to include an embedded ADLP (Airborne Data Link Processor)

TCAS II compatible

Hijack according to ARINC 718A

Two antenna interfaces for diversity operation

Maintainability and reliability

The transponders have been designed for exhibit high MTBF and low MTTR.
The shop-replaceable units are easily accessible and interchangeable.

Qualification

The transponders have been tested under the most stringent environmental conditions: temperature, humidity, altitude, shock, vibration, acceleration, fungus, salt and fog, explosive atmosphere, lightning, acoustic noise and EMC, according to MIL-STD-810 and MIL-STD-461, MIL-STD-462.

Technical characteristics

TECHNICAL CHARACTERISTICS	
Modes supported	Mode 1, 2, 3/A, C, 4 Mode S level 1, 2, and 3 Mode 5 level 1 and level 2
Interfaces	Bus 1553, ARINC 429, RS485, RS232, ethernet
Special functions	Mode S and mode 5 squitters ISLS TCAS II
BIT / BITE	Included
PHYSICAL CHARACTERISTICS	
Dimensions	ARINC 600 – 4MCU 193.5 x 123.95 x 318/338 mm
Weigth (without crypto)	< 6.9 Kg
RECEIVER CHARACTERISTICS	
Sensitivity (MDL)	According to STANAG 4193
Carrier frequency	1030 ±0.5 MHz
Dynamic range	MDL to -22 dBm
Diversity	Dual channel
TRANSMITTER CHARACTERISTICS	
Carrier frequency	1090 ±0.1 MHz
Peak power	27 dBm ±2 dB
Duty cycle (long-term)	According to STANAG 4193
POWER SUPPLY	
Power consumption	129 W max.
Input voltage	+28 V DC
According to	MIL-STD-704A
RELIABILITY / MAINTAINABILITY	
MTBF	≥3500 hr
According to	MIL-HDBK-217, RTCA DO160
ENVIRONMENTAL CHARACTERISTICS	
Operating temperature	-40°C to +71°C
Maximum altitude	50000 ft
According to	MIL-STD-810E, MIL-STD-461/462

NH-90

A400M

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