

[SELECTED FOR
U.K. HVM]



Identification Friend or Foe



TSA 1400

VSHORADS DIGITAL IFF INTERROGATOR

- > **Miniature volume / weight for Manpads use**
- > **STANAG 4193 Modes: 1, 2, 3/A, C, S All Call, 4**
- > **Mode S & Mode 5 Growth**
- > **8 days Code Store & Crypto appliqué**
- > **Up to 100 Km instrumented range**
- > **100 Watt output & Whisper / Shout**
- > **Pre-programmed interfaces for major platforms**
- > **Designed to replace SB 14, SB 16**

TSA 1400

DESCRIPTION

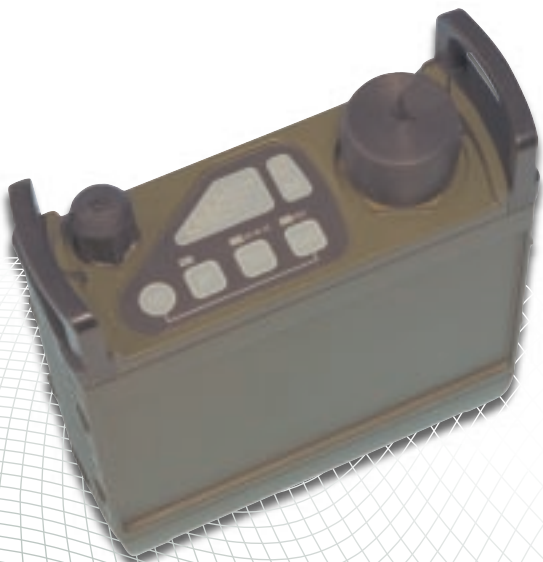
The TSA 1400 is a miniaturized Digital IFF interrogator suitable for all man portable and vehicular VShorads/Shorads applications having a range from 250 m up to 100 Km (upon antenna).

Unprecedented low volume and weight make it ideally appropriate to shoulder launched weapon systems. The TSA 1400 can be carried at the belt for shoulder launched missiles as well as installed with its antenna on the launcher or pedestal with minimal impact on the weapon's weight and balance.

The TSA 1400 is battery operated, compact and of modular construction: interrogator functions are shared between one RF and one digital replaceable subassemblies requiring no retuning after replacement.

The TSA 1400 has been designed to allow the implementation of Mode S and Mode 5 functions.

TSA 1400
Digital IFF Interrogator



TSA 1400 ▲
with mini Crypto Appliqué

Modes 1, 2, 3/A, C, S All Call and Secure interrogations are stored in a memory which allows, when required, to be used without a COMSEC crypto computer.

Where appropriate to operational requirement, the TSA 1400 can be fitted with a miniaturized crypto appliqué (M4, Secure or M5).

The TSA 1400 uses a digital reply processor which provides advanced performances to its signal processing, decoder and evaluator functions.

The TSA 1400 employs monopulse processing to measure azimuth when associated with a radar.

The TSA 1400 uses the Whisper/Shout technique based on a low/high power transmission scheme to maximize covertness. Interfacing the TSA 1400 with the weapon system is greatly simplified by having the major platforms interface configurations pre-programmed, ready for customer selection.



OPERATION

The TSA 1400 Digital IFF interrogator provides VShorads and Shorads with up to 8 days of Modes 1, 2, 3/A, C, S and Secure autonomous operation, and manages the code transition periods. Its Memory can be programmed with up to 4 Supermode interlace patterns.

When the TSA 1400 is fitted with its Control & Display Unit or controlled via its serial interface, the operator can select specific passive codes.

Aiming and pressing the interrogator switch are the only actions required from the operator: the identification process can be initiated either manually (weapon's trigger) or automatically (IR seeker) prior to firing at a target.

Whisper/shout interrogation sequences (consisting in the sending of a low RF power signal first then increasing the power if unsuccessful) are transmitted within the appropriate sector of interest by means of the directional antenna. Beam sharpening is achieved using ISLS/RSLs.

The short burst of Whisper/Shout IFF interrogations keeps TSA 1400's exposure to ELINT to the minimum since transmission is stopped automatically once the target is confirmed as a friend.

When selected, Secure Mode challenges are transmitted using the supermode pattern which enhances the number of hits.

TSA 1400's advanced BITE keeps the operator aware of the equipment status by injecting RF signals at the receivers front end before any interrogation sequence.

BITE and Friend status indications can be displayed on TSA 1400's front panel, in the weapon sight by means of a duration-coded blinking light or provided as beeps or synthesized voice (optional).

CODES LOADING

Loading the codes into TSA 1400's memory on the battlefield can be achieved simply using the keypad available on the front panel or connecting another TSA 1400 used as a Fill Gun. At the workshop level, a more friendly user interface can be offered based on a standard desktop or laptop computer and appropriate software package. TSA 1400's code loading interface is backwards compatible with SP 12 DM, previous generation SB 14's Code Loader.



Folding Antenna ▶



TSA 1400 with Low Profile Dual Antenna ▼



TSA 1400

GENERAL CHARACTERISTICS

Transmitter	All Solid State
- Frequency	1030 +/- 0.2 MHz
- Output Power Sum or Delta	≥ 100 Watts @ 1% DC Whisper / Shout operation
Receiver	Dual channel superherodyne
- 3 dB Bandwidth	≥ 8 MHz @ 1090 +/- 0.3 MHz
- Minimum Decoding Level (MDL)	Better than - 70 dBm
- RSLs, STC	Digital
Decoder / Evaluator	FPGA & Microprocessor
- Range	Up to 100 Km (upon antenna)
- Time to identify	0.1 Sec (typical)
- Modes	1, 2, 3/A, C, S All Call, 4 /Secure Mode S and Mode 5 Growth
- Operation	Automatic (ACC), Manual or Crypto appliqué (M 4/Secure, M5)
BITE	Automatic operation

PHYSICAL

Dimensions	(W x H x D) 170 x 60 x 161 mm
Weight	1.6 kg (including battery)
Power requirement	Self Powered (rech. battery) or Vehicle Battery Adaptor

ENVIRONMENT

Temperature	Operating	- 40°C to +71°C
	Storage	- 51°C to +71°C
Rainfall, Immersion		MIL-STD 810
Shocks, Vibrations		MIL-STD 810 E
EMC		MIL-STD 461 C

OPTIONS & ANCILLARIES

Yagi Antenna	Control & Display Unit
Folding Antenna	Mini Crypto appliqué
30 cm Flat Antenna	Tactical Container
Low profile Antenna (single or dual)	Data Loader
Vehicle Battery Adaptor	Belt Carriage Strap



◀ Control & Display Unit



▲ Low Profile Antenna



Folding Antenna ▶



30 cm Flat Antenna ▶



Mini Crypto Appliqué ▶



Yagi Antenna ▶

THALES

THALES Communications

66, rue du Fossé Blanc - BP 156 - 92231 Gennevilliers Cedex - FRANCE

Phone: +33 (0)1 46 13 20 00 - Fax: +33 (0)1 46 13 21 63

www.thales-communications.com