



TURMA

## TURMA FAMILY

### BEST IN CLASS OF HF/VHF COMBAT NET RADIO

Turma systems are the response at the treat of asymmetrical scenarios, where the relevance of tactical communications and services is dramatically increasing.

Their capabilities in terms of reliability, security, efficiency, ease of use and flexibility are today the state of the art.

#### Turma Family is composed by:

- TURMA Manpack, 25W HF/SSB - VHF/FM 10W for manpack use
- TURMA Vehicular 25W HF/SSB - VHF/FM 10 W for vehicular installations
- TURMA Fixed 125W HF/SSB - VHF/FM 50 W for fixed/semifixed installations with external High Power Amplifier and Antenna Tuning Unit

#### The first need: Security

EPM protection is ensured in terms of both TRANSEC and COMSEC.

Security of transmission is obtained by the use of frequency hopping (voice and data), enhanced by new dedicated waveform.

Security of communications is implemented as an internal crypto module.

#### High efficiency

With the most extended frequency range in the class (1.6 MHz to 59.9750 MHz) Turma allow any range of tactical communications in HF/VHF band.

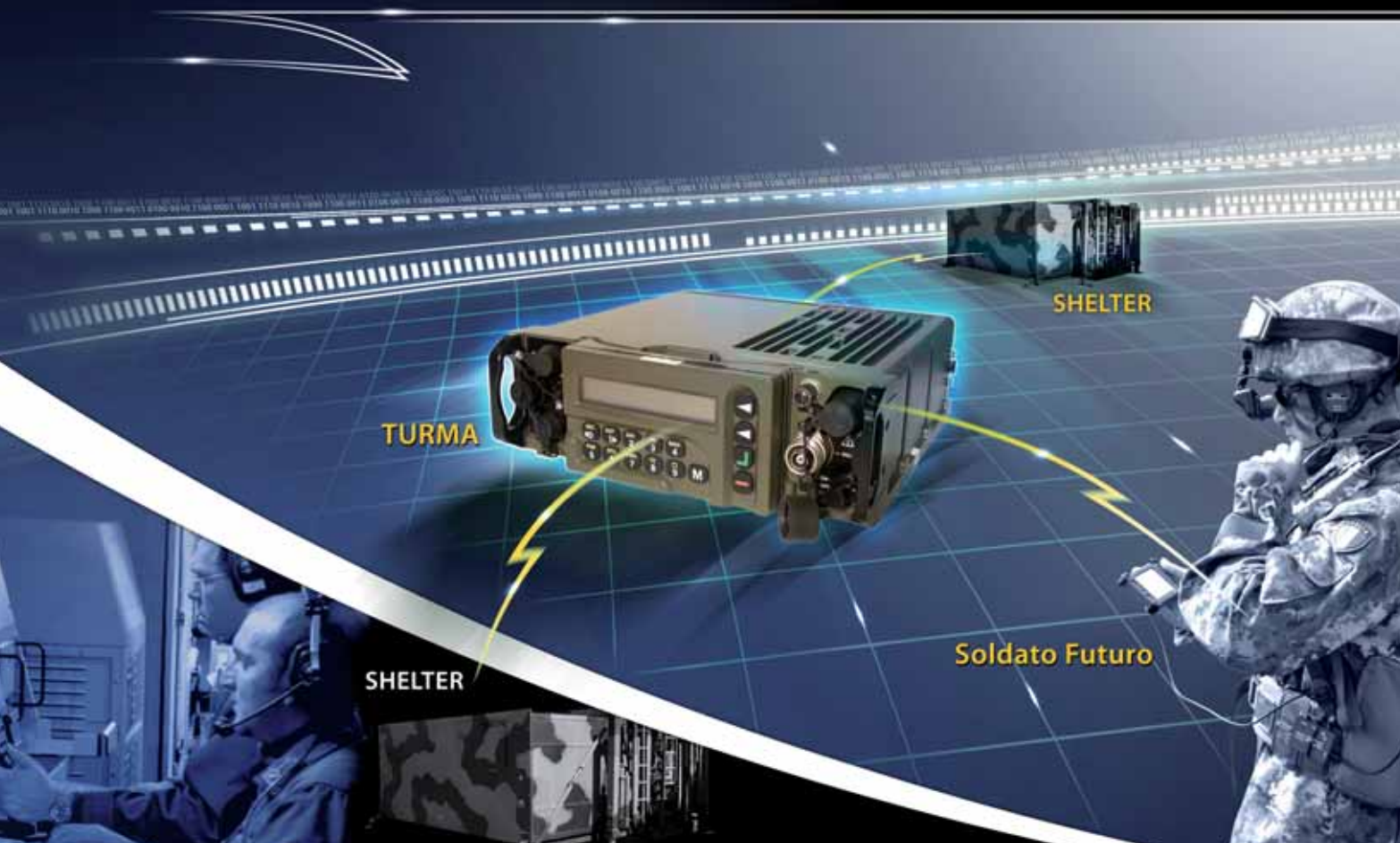
Moreover the system has highest levels of sensitivity and autonomy

#### Combat Net Radio Services: looking towards NCW

In line with the requirement for full integration of lower-echelon field units into the Command and Control System, Turma offer a wide range of services, such:

- Fully integrated CNRI capability without any additional HW
- Capability to communicate with other mobile users as well as with fixed users of the Strategic Network
- Data and voice services for selective calls or broadcasting in both plain and secure mode

# TURMA Combat Net Radio Capability



- Radio Localization
  - Position and speed
  - Data quality
  - Unit identifier
  - Time of data transmission
- E-mail on HF
  - Support COTS client
  - Automatic Adaptive Speed
  - Integration with ALE

- ARQ capability
- FAX on e-mail

## **Never alone: full support and customization**

SELEX Communications, the biggest Italian communications company, is always behind you to receive and satisfy any further need.

Turma systems are developed upon a software programmable architecture, in order to meet specific requirement and allow a progressive evolution.

## **TECHNICAL SPECIFICATIONS**

Frequency Band	1.6 - 59.9750 MHz
Tuning Step	1 Hz (Frequency range 1.6-29.999999 MHz ) 25 kHz (Frequency range 20-59.9750 MHz FM mode )
Modes of Operation	Simplex/Half Duplex
Preset Radio Channels	100
Preset data profiles	100

Types of Service	Telegraphy (J2B)
	Morse (J2A)
	Voice plain/crypto (via internal crypto facilities) in USB/LSB (J3E), AM (A3E) and FM (F3E)
	FSK up to 300b/s in HF (STANAG-4481)
	NPSK data up to 3600b/s in HF (STANAG-4285/4529)
	NQAM data up to 9600b/s in HF (STANAG-4539 HDR/MIL-STD-188-110B Annex C)
	Data up to 16kb/s in VHF
	MIL-STD-188-110B (Serial Tone) up to 4800 bps
	Frequency Hopping Voice (LPC10/MELP) and data up to 2400 bps
	Fast Frequency Hopping Voice (CVSD) and data up to 16 Kbps
Frequency Stability	+/-1*10 <sup>-6</sup> /day
Setting Mode of Operation	Through Alphanumeric Display and Keyboard (Frequency, Channel, etc)
Control	Local or Remote Via Internal Line
	Modem (up to 3km)
Transceiver dimensions	250mm(W) x 240mm(D) x 80mm(H) without battery
Transceiver weight	3.7 Kg
Antennas	Whip, Tactical and Transportable Dipole, Short/Long Wire, GPS

#### Receiver

Sensitivity (S/N=10dB)	-112 dBm (USB, LSB), -100 dBm (AM) -105 dBm (FM)
Selectivity	300Hz to +3050Hz at 3dB -400Hz to +4550Hz at 60dB
Output audio level	Headphone: 15mW/600 ohm
(Distortion Less Than 5%)	Speaker 150 mW 4 ohm
IF & image rejection	80dB minimum (in HF band)

#### Transmitter

RF output power (50 ohm)	- TURMA Manpack: 25W average and PEP (SSB), 10 W (FM)
	- TURMA Vehicular: 25W average and PEP (SSB), 10W (FM)
	- TURMA Fixed: 125W average and PEP (SSB), 50W (FM)
Intermodulation Products	30db min below the level of each tone
Carrier Suppression	50dB min
Harmonic Attenuation	45db min
Antenna tuning	Automatic
Tuning Time	3 sec max for any frequency, 10 ms for stored frequency
Primary power	- TURMA Manpack: 24 Vdc from Battery
	- TURMA Vehicular: 24 Vdc nominal from Vehicular Battery
	- TUMA Fixed: 24Vdc from External Power Supply Unit
Nominal consumption	- TURMA Manpack: 72W max USB Voice
	- TURMA Vehicular: 78W maxUSB Voice
	- TURMA Fixed: 600W max USB Voice
Manpack battery life	12 hrs, based on a 9:1 receive to transmit duty cycle in USB voice mode, using 7.2Ah Nickel Metal Hydride battery.

#### Environmental

Temperature	-40°C to +55°C operating,
	-40°C to +70°C storage
EMI	As per MIL-STD-461D
Humidity, rain, corrosion, vibration	As per MIL-STD-810F



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