

# TRC 7450

## Tactical Bulk Encryption Unit

3 independant full duplex links up to 2 Mb/s each

- High level of security
- TEMPEST (AMSG 720B)
- Red and Black sides protections
- EUROCOM/AMI
- 64 Kb/s up to 2048 Kb/s
- Automatic key management
- Custom LSI key generator
- No error propagation
- Remote control
- Built-in test feature



### Application

The TRC 7450 provides a high security level confidentiality service on the links of tactical networks without transmission rate change.

It is intended for encryption and decryption of digital speech and binary data bunched by multiplexer or switch equipment.

Data are encrypted and decrypted simultaneously in both direction. End-around synchronization is used.

Installation of the TRC 7450, inserted between the Switch (or a Mux) and the

Line Transmission Unit (LTU), is very simple. Its operation is fully automatic.

It is adapted to military tactical nets compliant with the most frequent interface standard, EUROCOM/AMI interface.

It is able to bear trunks by relay radios or by satellite links.

Designed with the most up-to-date technology, it offers in a very little volume, the service of independent ciphering-deciphering of 3 full duplex links, allowing its integration in the highest mobile tactical nets.

# TRC 7450

## SPECIFICATIONS

### Security

The TRC 7450 provides a maximum level of security, using a high level cryptographic processing, a TEMPEST (AMSG 720B) design, a break-in protection (with automatic keys erasing), an effective and highly decentralized key management providing optimal partitionning and easy operation. A high degree of trust on the equipment can be guaranteed by the choices made in design and development methodology.

#### Automatism and transparent

The TRC 7450's operation is fully automatic after the initial synchronization command. In case of link disturbance, (fading for instance), reported on the line #5 of the Switch EUROCOM interface, recovering of synchronization is automatic.

#### Performances

The TRC 7450 inserts in EUROCOM/AMI trunk with a rate of 64, 128, 256, 512, 1024 or 2048 kbps. The full capacity of the trunk is given to communications. The initial synchronization is very short. Recovering of synchronization is necessary only after a radio transmission incident.

#### Installation - service setup

The TRC 7450 is built in a 1/4 of 19" - 6U box and can be mounted in a 19" rack. Its modularity makes it comply with nets of limited dimensions or complex nets. A single equipment offers a nodal capacity of 3 ciphered trunks. Integration of 4 equipments on 19" width offers a nodal capacity of 12 ciphered trunks for highly meshed tactical nets. It accepts 24 V DC or 220 V AC - 50 Hz power supply.

A couple of connectors allows connection of a monitor on a V11/RS485 or a V24/RS232 interface.

#### Exploitation - Key management

After activation and initialization on each trunk, operation is fully automatic. Key management is also very simple. Once secret data have been loaded by a key fill device (KFD), the equipment can be autonomous in keys for several months without any other operation. The KFD is filled by a Key Generation Center, KGC, located at Headquarters.

#### Reliability - Maintainability

The electrical and mechanical design of the TRC 7450, default quality control and validation processing make it highly reliable. A built-in test checks for correct operation and default diagnostic. Electronic boards are identical and interchangeable optimizing the logistics. The majority of failures which may happen on one board, (troubling one trunk), does not prevent from carrying on ciphering-deciphering on the two other trunks. The various subassemblies can be removed easily. Repair can be done on site.

Technical characteristics			Cryptology		Proprietary crypto algorithm	
Dimensions	1/4 of 19" x 6U W x H x D = 100 x 240 x 450 mm		Key diversity Key stream period	Highly secure algorithm		
Power supply	220 V AC- 50 Hz or 24 V DC			10 <sup>38</sup>	Possible customization among 10 <sup>19</sup> algorithms	
Power consumption	< 60 W		Security management	Number of nodes	300 max	
Weight	10 kg			Number of networks or/and bridges for a node	4 max	
Temperature range	Operation	- 25 ° C to + 55° C	<ul style="list-style-type: none"> <li>- Protected and emergency clearable key memory</li> <li>- Key loading by key fill device</li> <li>- Mechanical protection with key erasure against break-ins.</li> <li>- TEMPEST (AMSG 720 B)</li> </ul>			
	Storage	- 33° C to + 71° C				
Environment	Tactical equipment	The TRC 7450 can be employed in both fixed and mobile headquarters				
MTBF	10.000 h		Maintenance			
Trunk rates	64, 128, 256, 512, 1024, 1152 or 2048 kbps					
Interfaces	to switch to LTU to control terminal	EUROCOM D1-A, lines # 1 to 6 EUROCOM D1-B, lines # 1 to 4 V24 / RS 232 or V11 / RS 485 with HDLC protocol	<ul style="list-style-type: none"> <li>Built-in test</li> <li>Continuous checking of operation with permanent control of cryptological functions</li> <li>Maintenance test</li> <li>Loop tests</li> </ul>			
	to other TRC 7450 key fill device	V11 / RS485 V24 / RS 232				



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