

# TCX01c



## **DIGITAL ENCRYPTION** **for VHF/UHF RADIO**

The TCX01c – Telsy Crypto Module – is a unique and sophisticated fully digital radio encryption unit, combining encryption, vocoder and modem in a single module. The equipment, designed to be installed in both mobile and hand-held radio, takes advantage of the wide experience TELSYP gained with the TX series of equipment delivered in tens of thousands of units to military and law enforcement users. The TCX01c is designed to operate on VHF/UHF radio networks either with standard or reduced (12.5 kHz) channel spacing, in simplex or semi-duplex, with the ability to operate also over trunk networks including telephone line sections and microwave links. Latest generation modems and vocoders have been designed to allow excellent voice quality even over bad channels. Configurations, such as key management and key injection, are performed through the accessory connector of the radio, controlled by PC or PDA. ROAR – Radio On the Air Rekeying - key management technology is available to allow fast and reliable operation on the field.



# TCX01c Specifications

## GENERAL

■ Applications	<ul style="list-style-type: none"><li>● Digital voice encryption module designed to operate over VHF/UHF standard (25kHz) or narrow (12,5kHz) spacing radio channels, simplex or semi-duplex</li><li>● Compatible with conventional, simulcast and trunk radio networks</li><li>● Factory fitted or upgrade to the following radio equipment: Tait Orca 5000 portable radios Tait T2000 Mobile radio Tait T8000 Mobile radio</li></ul>
■ Features	<ul style="list-style-type: none"><li>● Fully digital on standard voice grade 700 ÷ 2100 Hz simplex audio channels, PTT-control</li><li>● Simple operation, clear/crypto switch from the radio</li><li>● Automatic clear/crypto override in crypto mode RX (receive)</li><li>● Message buffering during synchronization, possibility to receive very short encrypted voice messages</li><li>● Built-in channel test instrument</li></ul>

## CRYPTOLOGY AND SECURITY

■ Encryption Process	<ul style="list-style-type: none"><li>● Stream cipher Telsy proprietary algorithm</li><li>● Customised algorithms available on request</li></ul>
■ Keys (codes)	<ul style="list-style-type: none"><li>● User-defined key structure up to 8192 bits (e.g. 16 user keys of up to 384 bits each)</li><li>● Modem random vector initialization: 50 bits</li></ul>
■ Physical noise generator	<ul style="list-style-type: none"><li>● Based upon microphone audio noise and random events</li></ul>
■ Key management	<ul style="list-style-type: none"><li>● Key injection via the programming connector of the radio</li><li>● On Air Key Management</li></ul>
■ Identifications (module IDs)	<ul style="list-style-type: none"><li>● 24-bits electronic serial number (6 digits)</li><li>● Electronic identification numbers (128 + 256 bits)</li></ul>

## COMMUNICATION FUNCTIONS

■ Vocoder	<ul style="list-style-type: none"><li>● MELP type</li></ul>
■ Modem	<ul style="list-style-type: none"><li>● OFDM technique optimized for operation over radio channels</li><li>● Error probability <math>&lt; 10^{-2}</math> at S/N = 15 dB</li><li>● Late entry 1200 ms</li></ul>
■ Radio interface	<ul style="list-style-type: none"><li>● Power</li><li>● Ground</li><li>● Microphone input</li><li>● Audio output (independent from volume settings)</li><li>● Audio output to volume setting</li><li>● PTT bidirectional (Push-To-Talk)</li></ul>

## OTHER

■ Approvals	<ul style="list-style-type: none"><li>● CE</li></ul>
■ Electromagnetic compatibility	<ul style="list-style-type: none"><li>● Emissions: EMC 89/336 : EN55022, EN55024</li></ul>
■ Power	<ul style="list-style-type: none"><li>● Power: 5 Vcc from the radio</li><li>● Typical consumption: <math>&lt; 150</math> mA max a 5 Vcc, typical 110mA</li><li>● Standby consumption: <math>&lt; 10</math> mA, typical 5 mA</li></ul>
■ Environmental	<ul style="list-style-type: none"><li>● Operation temperature: <math>-10 +50</math> °C</li><li>● Storage temperature: <math>-20 +70</math> °C</li><li>● Humidity: 95%</li></ul>
■ Mechanics	<ul style="list-style-type: none"><li>● Dimensions 35 x 33 x 4 mm (max)</li></ul>

Products improvements can change specifications without notice.  
This information may not be copied in whole or in part without TELSYP's written permission.

