

# R&S® ELCRODAT 7-MC

Ruggedized HF/VHF/UHF/IP  
security for voice and data



Product Brochure  
Version 04.00

**ROHDE & SCHWARZ**

Make ideas real



# AT A GLANCE

The R&S®ELCRODAT 7-MC is a fully ruggedized tactical crypto device used to encrypt and decrypt voice and data communications for German, EU and NATO security classifications up to SECRET. TEMPEST-proof, it is interoperable with HF/VHF/UHF radio, satellite communications, line transmission equipment and IP infrastructure. It is perfectly suited for deployment on stationary and mobile platforms in rugged terrain and in naval and airborne environments.

The R&S®ELCRODAT 7-MC is designed to be a form-fit replacement for its predecessor, the R&S®ELCRODAT 4-2. With its modern hardware and software architecture, it also provides the necessary capabilities for state-of-the-art crypto protocols, including post quantum algorithms and data rates up to 1 Gbit/s.

The R&S®ELCRODAT 7-MC allows flexible deployment. It provides serial interfaces for use in traditional radio and modem environments and Ethernet interfaces for integration into IP networks. Additionally, it can install, store and run multiple crypto applications implementing different crypto modes enabling flexible use needed for different national and coalition scenarios. The R&S®ELCRODAT 7-MC can be operated either with a control unit, via a web interface or using the MIL-bus module.

## Key facts

- ▶ Voice and data encryption for security levels up to GEHEIM, NATO SECRET (planned), EU SECRET/SECRET EU (planned)
- ▶ Protects HF/VHF/UHF satellite communications and line transmission
- ▶ Supports IP encryption protocols such as NINE and SCIP
- ▶ Data rates up to 1 Gbit/s
- ▶ Fully rugged, tamper-protected, TEMPEST-proof
- ▶ Stationary and mobile deployment in all military branches (army, navy, air force)
- ▶ Ideal for end-user handling and management thanks to small size and simplified setup
- ▶ Upgradability by secure software download ensures that future challenges can be met
- ▶ Hardware provisioned for future applications, e.g. post-quantum cryptography

Front view



Rear view



# BENEFITS AND KEY FEATURES

## Form-fit function to R&S®ELCRODAT 4-2

The R&S®ELCRODAT7-MC is designed to be a form-fit replacement for its predecessor, the R&S®ELCRODAT 4-2:

- ▶ Dimensions (90.4 mm × 193.5 mm × 200 mm)
- ▶ Connectors and physical interfaces (see page 5)
- ▶ Interoperable with VINSON, ANDVT and line encryption modes
- ▶ Operating modes for voice and data transmissions
- ▶ Synchronous and asynchronous transmissions over red and black interfaces

## State-of-the-art, software defined crypto device

- ▶ Interoperable with legacy cryptographic protocols
- ▶ Support for modern IP and radio based cryptographic protocols like NINE and STaC-IS

## Comprehensive protection through elaborate security concept

- ▶ High-security, custom-made hardware
- ▶ Dedicated hardware and software security architecture
- ▶ Hardware tamper protection
- ▶ Crypto ignition key
- ▶ Audited production environment

## Multiple dedicated operator interfaces for various applications

- ▶ Web interface
- ▶ Remote control interface (LAN)
- ▶ MIL-bus communications interface
- ▶ Control unit user interface

## Interoperability with other crypto devices (selection)

- ▶ SCIP and NINE compatible crypto devices
- ▶ STaC-IS compatible crypto devices
- ▶ Legacy crypto devices (e.g. R&S®ELCRODAT 4-2, KY58, KY100, KIV-7M)

## Flexible operation with state-of-the-art technology

- ▶ Software defined crypto
- ▶ Flexible configuration
- ▶ Online management

## Wide selection of accessories simplifies commissioning and operation

- ▶ PC based configuration via web interface
- ▶ Mounting frame secures the device in physically demanding environments
- ▶ Seamlessly adjustable external power supply unit (110 V/240 V)

# EXTENSIBLE AND FLEXIBLE

The R&S®ELCRODAT 7-MC is a modern, software defined crypto device with a general-purpose platform part and runtime-changeable crypto applications. The hardware platform of the R&S®ELCRODAT 7-MC is powerful enough to also support future crypto protocols – in particular for the post-quantum era.

## Platform

The platform implements general functions such as secure boot, secure software update, secure storage and key management.

## Crypto application

Crypto applications implement the payload processing, voice coding and payload encryption/decryption. The R&S®ELCRODAT 7-MC can store multiple crypto applications. A crypto application can be selected during runtime. New and further crypto applications can be installed on the R&S®ELCRODAT 7-MC by using its secure software update mechanism.

**R&S®ELCRODAT 7-MC supports among others the following crypto protocols:**

### STaC-IS

STaC-IS is the NATO interoperability standard to provide legacy radios and end devices with state-of-the art cryptographic algorithms and vocoders.

### SCIP

This NATO secure communications interoperability protocol provides high-grade encryption over a voice-over-IP based crypto protocol.

### NINE

This is the NATO interoperability standard for IP network encryption.

### VINSON

VINSON is the legacy NATO interoperability standard for wideband communications.

### ANDVT

ANDVT cypto mode is the legacy NATO interoperability standard for narrowband communications.

### LEFCIS

This are cryptographic protocols of the LINK encryptor family.

Various fields of application of the R&S®ELCRODAT 7-MC



# SPECIFICATIONS IN BRIEF

Specifications in brief		
<b>Supported crypto protocols</b>		
STaC-IS	wideband voice/data	16 kbit/s (baseband/diphase)
	narrowband voice/data	all specified bandwidths
VINSON	wideband voice/data	16 kbit/s (baseband/diphase)
ANDVT crypto mode	narrowband voice/data STANAG 4197	2.4 kbit/s
SCIP	STANAG 5068	up to 1 Gbit/s
NINE	STANAG 4787	up to 1 Gbit/s
Line encryption	synchronous	0.2 kbit/s to 2 Mbit/s
	asynchronous	0.3 kbit/s to 115.2 kbit/s
LEFCIS	synchronous	all specified bandwidths
	asynchronous	all specified bandwidths
<b>Loadable cryptography (traffic and key protection)</b>		
Algorithms		suite A and suite B algorithms
		quantum-computer-resistant algorithms
<b>Telecommunications data</b>		
Analog interface	audio interface	universal four-wire intercom interface, level range 60 dB
	radio interface	narrowband/wideband, level range 60 dB
	voice processing	<ul style="list-style-type: none"> <li>▶ MELPe STANAG 4591</li> <li>▶ delta codec (CVSD)</li> <li>▶ LPC10E STANAG 4198</li> </ul>
Digital line interface	V.24	V.11 (RS-422), V.28
Ethernet interface	red interface	10/100/1000BASE-TX
	black interface	10/100/1000BASE-TX
<b>Other interfaces</b>	FILL	DS-101 on front and rear panels, key loading, in line with EKMS308F
	emergency clear	mechanical switch or central clear interface
	user authentication and crypto ignition key	hardware token
	software based control	MIL-STD-1553B, LAN (10/100 Ethernet) and operating panel
<b>RF leakage/EMC</b>		
RF leakage		TEMPEST approved
EMC		in line with MIL-STD-461G/AECTP-500 Category 501
Spike and surge on power inputs		spike and surge suppression, in line with RTCA/DO-160 G and MIL-HDBK-704 F
<b>Environmental</b>		
Shock/vibration/rain/salt/fog/dust/sand/fungus		in line with MIL-STD-810H
<b>General data</b>		
Temperature range	operating temperature	-40°C to +71°C
	storage temperature	-40°C to +85°C
Supply voltage	input	28 V (12 V to 36 V) DC
Power supply	with separate AC/DC converter	110 V to 240 V AC, 50 Hz to 60 Hz
Power consumption		< 30 VA
Dimensions	W × H × D, base unit	90.4 mm × 193.5 mm × 200 mm (3.56 in × 7.6 in × 7.9 in)
Weight	base unit	approx. 5 kg (11 lb)
R&S Material number/Tkz		5416.8899K03

## Rohde & Schwarz

The Rohde&Schwarz technology group is among the trail-blazers when it comes to paving the way for a safer and connected world with its leading solutions in test & measurement, technology systems and networks&cybersecurity. Founded more than 85 years ago, the group is a reliable partner for industry and government customers around the globe. The independent company is headquartered in Munich, Germany and has an extensive sales and service network with locations in more than 70 countries.

[www.rohde-schwarz.com](http://www.rohde-schwarz.com)

## Sustainable product design

- ▶ Environmental compatibility and eco-footprint
- ▶ Energy efficiency and low emissions
- ▶ Longevity and optimized total cost of ownership

Certified Quality Management

ISO 9001

Certified Environmental Management

ISO 14001

## Rohde & Schwarz training

[www.training.rohde-schwarz.com](http://www.training.rohde-schwarz.com)

## Rohde & Schwarz customer support

[www.rohde-schwarz.com/support](http://www.rohde-schwarz.com/support)



R&S® is a registered trademark of Rohde&Schwarz GmbH&Co. KG

Trade names are trademarks of the owners

PD 3608.4180.12 | Version 04.00 | June 2024 (dh)

R&S®ELCRODAT 7-MC

Data without tolerance limits is not binding | Subject to change

© 2020 - 2024 Rohde&Schwarz GmbH&Co. KG | 81671 Munich, Germany