



Multi-band radio relay

R-450W

First Polish multi-band radio relay SDR

Simultaneous operation in three frequency bands

Support for multi-hop

Data safety

Resistance to interferences

Dynamic adjustment of radio parameters

Simple configuration (WWW, SNMP)

Interoperability by NATO standards

Radio relays R-450W are intended to create wireless local (LAN) and wide (WAN) packet networks IPv4, using VHF and UHF bands (from 30 MHz to 2400 MHz).

The multi-band radio relay enables to operate in three frequency sub-bands simultaneously with a possibility to transfer data and voice between sub-bands.

Thanks to different propagation characteristics of particular sub-bands of radio relay operating frequencies, it will be possible to create very flexible command structures providing:

- the organization of wireless connections between stationary and mobile objects as well as the organization of high capacity access networks for a wire-radio-relay system of the brigade-division-corps level, in accordance with a developed WBWF standard of a bit rate up to 8Mbps.
- the communication between stationary and mobile objects (e.g. investigation, command-post, or firing weapons) for a distance up to 50 km with a maximum bit-rate up to 82 kbps, in accordance with NATO standards - STANAG 5630, 5631, 5632, 5634 (after their full implementation);
- the organization of communications on a patrol-platoon level with a possibility to hold talks between 5 groups simultaneously on the same frequency and with a possibility to transfer data with a throughput up to 1 Mbps per a connection.

The above features allow to use R-450W to create telecommunications infrastructure of network-centric command systems from a Brigade-Battalion level to Patrol-level. Radio relays belong to the latest generation of devices based on SDR technologies – in which the modulation and control are performed by software (*Software Defined Radio*).

The multi-mode radio relay R-450W is also equipped with an internal encryption engine, basing on the SCIP protocol (*Secure Communication Interoperability Protocol*), pursuant to STANAG 5068. It allows to encrypt the transmission of the user (sound and data) in a standardized way, ensuring the cryptographic interoperability with future allied and coalition solutions as well as the compliance with the key material generated in a way specified for SCIP and NINE devices.



TECHNICAL PARAMETERS

BASIC FUNCTIONALITIES

Flexible reconfiguration and adaptation of system parameters to changes to environment and network topology

Automatic change of relevant modulation and coding depending on a propagation quality

Service Quality Management (QoS)

Platform to transfer different services (VoIP connections, videoconferences, the Internet, email etc.)

Interaction with stationary systems

Modular and open hardware platform – SDR (*Software Defined Radio*)

Centralized management with GPS location

Built-in cryptographic possibilities consistent with STANAG 5068

Management from the website WWW, HMI, SNMPv3 and console

Supporting routing protocols: OSPF, BGP-4, RIPv1, RIPv2

Building bridges

PARAMETERS

Frequency ranges	30-108 MHz 225-400 MHz 1250-2400 MHz
Modulation type	OFDM (BPSK, QPSK, 16QAM, 64QAM)
Supported waveforms	SCSMA/CA, MCSMA/CA, RTE, NBWF, FH

TRANSMITTER PARAMETERS

Transmitter power	50 W for range 30-108 MHz 20 W for range 225-400 MHz 2 W for range 1250-2400 MHz
Regulation of transmitter power	Manual: step 1 dB Automatic
Frequency stability	±2 ppm
Attenuation of spurious emission	≥80 dBc
Harmonic attenuation	≥80 dBc (with the exception of second and third harmonic)

RECEIVER PARAMETERS

Noise figure	<6 dB
Sensitivity	min.-100 dBm/1MHz/BPSK/BER<1e ⁻⁴

INTERFACES

Ethernet interface	Electrical 10/100Base-T/TX Optical 100Base-FX
GPS	RS-422/232
Diagnostic	RS-232

POWER SUPPLY

Power supply	+27 V (from 19 V to 35 V)
Power consumption	<250 W

OTHER TECHNICAL PARAMETERS

Dimensions (HxWxD)	220x300x342 mm
Weight	<25 kg
Mechanical and climatic classification	Groups N.7, N.9, and N.11-O-II(A and B), acc. NO-06-A101÷108 (MIL-STD-810G compliant) (multi-use and continuous use equipment)
Electromagnetic compatibility	NO-06-A200 (MIL-STD-461F compliant) (KRE-02, KCE-02, KCS-01, KCS-06, KCS-07, KCS-08, KRS-02)
Operating temperature	From -30°C to +50°C
Storage temperature	From -40°C to +65°C
Humidity	95-98% at +40°C

