

DICOM® RF4050

VHF/UHF vehicular radio

- 30 MHz to 512 MHz frequency range
- Multi channel radio system
- True MANET network for VHF/UHF
- Simultaneous voice and IP data
- Virtual voice channels
- Multiple waveforms support
- Position reporting system (GPS, Galileo, Glonass)
- AES based COMSEC/TRANSEC
- Up to 50 W power output
- Compact and robust design
- Jerk and Run support
- Connection to the vehicle's intercom
- 12 VDC or 24 VDC power supply
- Mission Modules support
- Up to two internal co-site filters
- Backward compatibility with the DICOM® RF20 radio system



MESIT
defence

DICOM® RF4050

VHF/UHF vehicular radio

Mode selector

Controlling of the vehicular radio is very simple and intuitive. It is performed through the controls of the RF40 handheld radio and does not differ from the control of the handheld radio itself. Basic control is provided by the Mode Selector, which activates the radio and selects basic operating modes.

- on/off
- channel selection
- setup and programming
- channel erase



Backlight display

Important operating information is clearly displayed with graphic elements on a large monochrome LCD backlit display. All control keys are backlit as well.



Keypad

Other controls are done using softkeys and navigation keys located below the display.

AUDIO

- Interface to the intercom system
- dual input line (symmetric, 600 Ω)
- dual output line (symmetric, 600 Ω)
- dual PTT input
- receive active signal output

GNSS

Interface to the passive or active GNSS antenna



AF

Interface for audio auxiliaries

- microphone input
- speaker output
- PTT input
- control and filling



POWER

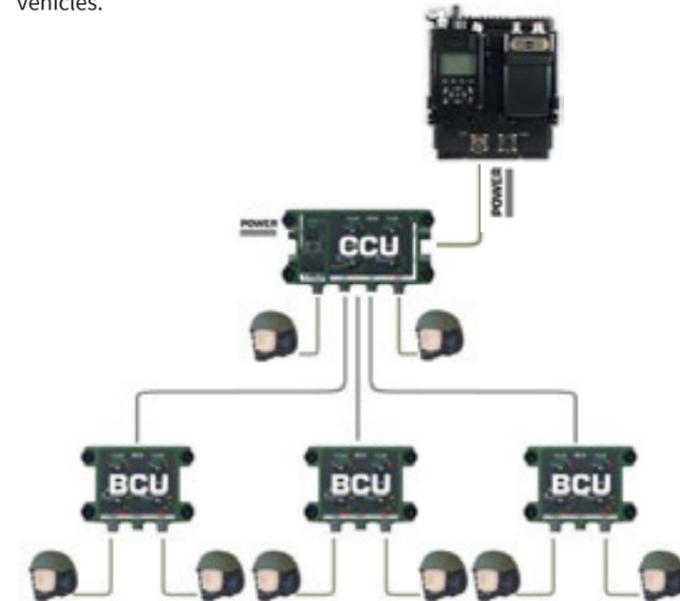
Power supply from vehicle board

The RF4050 radio is equipped with two internal slots for Co-site filters (optional). These are necessary in situations with multiple radios in one place (typically on a vehicle), which must simultaneously operate without interference. The decisive factor is then the distance between their antenna systems (their interconnection).

Co-site 30-88 MHz allows antennas to be placed at a minimum distance of about 1.5 m from each other (e.g. 2.6 m rod, monopole) with a minimum spacing of operating frequencies of 10 %. Other frequency variants of filters and customization according to specific installation conditions on request.



The RF4050 radio is suitable for installation in wheeled and tracked vehicles of various types. For these purposes, it is installed in a shockmount that is required to meet the vibration and shock requirements of MIL-STD-810G. The radio stands out for its compactness, low weight and small dimensions, making it very easy to install even in confined spaces inside some smaller combat vehicles.



The radio can be easily connected to an intercom system.

For this purpose, there is the AUDIO interface equipped with all the necessary signals. Because the WF40 waveform supports two independent simultaneous voice streams in one radio channel, there are two inputs and two outputs for modulation on the AUDIO connector as well as two independent signals for the control of keying. According to user requirements, these two voice signals can be interpreted independently in the left and right headphone of a headset. The modulation inputs and outputs are led symmetrically at line levels with a nominal level of 0 dBm/600 Ω. The signal levels on lines can be configured in a wide range and thus adapted to virtually any intercom system.

EXT

Interface to Data Terminal Equipment (BMS)

- Ethernet 10/100
- USB 2.0 OTG
- RS232C



VHF/UHF

Two antenna interfaces

- 30 MHz to 512 MHz to VHF only or
- switching between VHF and UHF output (frequency selectable)



The RF4050 vehicular radio consists of the RF40 handheld radio and an amplifier block into which the radio is docked. Docking of the radio provides its firm mechanical attachment and system interconnection through a multi-pin nut connector and power connector on the back of the radio.



Docking of the radio into the amplifier is controlled by only one element, allowing for a very easy and fast removal of the radio - Jerk&Run support.



To the right of the RF40 handheld radio, there is a slot on the amplifier block for the extension module called the Mission Module. This is an easy way for the user to adapt (extend) the properties of the vehicular radio to specific deployment. The Mission Module is an universal electromechanical concept that can integrate electronics of different types. There is, for example, MM40W, which implements a MANET-type broadband radio. By installing this module, the properties of the radio are extended by a second independent radio channel (L-band or S-band available), which in a wide channel (adjustable from 5 to 40 MHz) offers user data transmission rates of up to tens of MBit/s.



The RF4050 multiband, multirole VHF/UHF vehicular radio is designed for communication on the tactical level in all military branches.

The RF4050 is intended for installation in all tracked and wheeled vehicles and base stations. The core component of the RF4050 is the RF40 handheld radio. To maintain communications in dismount operations, the system's "jerk-and-run" capability allows the handheld radio to be quickly removed.

Variety of waveforms

FM/AM - voice modes according to STANAG 4204/4205 support legacy ground-to-ground and ground-to-air communication.

WF40 - full fledged COMSEC-secured MANET-type network for voice and data communication in VHF and UHF with automatic rebroadcasting capability over several hops in only 250 kHz wide radio channel offering up to 270 kbit/s capacity for data.

HW20 - frequency agile VHF waveform secured by strong COMSEC/TRANSEC allowing backward compatibility with DICOM®RF20 radio system.

This modern software defined radio platform is open for further legacy and custom waveform porting.

Mission Module

Expands the radio features according to actual mission needs. Open platform for installation of custom specific devices of different types. MM40W Mission Module type offers second independent broadband radio channel for voice and data transmission in MANET-type network. Available in L-band or S-band frequency configuration allowing data transmissions in dozens of megabits depending on the radio channel bandwidth setup.

Technical parameters:

Frequency range		30 MHz to 512 MHz
Modulation type		FM, AM, CPM
Transmission power		max. 50 W
Supply voltage range		10 V to 33 V (MIL-STD-1275E)
Current consumption 24 V	Transmission 50 W	max. 12 A
	Reception	max. 0.8 A
Channel bandwidth		25 kHz, 250 kHz
Waveforms		LOS FM/AM (STANAG 4204/4205)
		WF40 (VHF/UHF MANET waveform)
		HW20* (VHF EPM waveform)
Communication encryption		AES, key length up to 384 bits
GNSS receiver		built in (GPS/Glonass/Galileo)
Data interfaces		Ethernet, USB, Serial
Mechanical and climatic resistance, EMC		
Dimensions		202 mm x 220 mm x 226 mm
Weight		max. 10 kg
Operating temperature range		-40 °C to +70 °C
Environmental specification		MIL-STD-810G
EMC specification		MIL-STD-461F

* option



GNSS

Built-in GNSS receiver for GPS, Glonass and Galileo systems with automatic despatch of positional reports (PLI) on the background of voice or data communication - G-Track system.

Co-site performance

The transceiver is manufactured with or without a co-site filter. Integrated co-site filters make it possible to operate multiple radios simultaneously at close distance.

Intercom

The RF4050 provides interface for connection to vehicle intercom systems (e.g. VICM200 Combat).