



Digital Multimode UHF/VHF Radios 4000 Series



Digital Multimode 4000

The Jotron 4000 series Multimode Digital Defence Communication Radio.

The JOTRON series 4000 defence radio system is intended for military communication applications.

The JOTRON series 4000 is a multi purpose, multimode radio system covering both VHF and UHF ground to air band. The series 4000 radio system meets the present and future requirements of the ground to air communication.

The equipment is highly modular with a construction for very rugged conditions. The modules fit in a standard 19-inch, 3 HU high subrack. The JOTRON series 4000 supports multimode operational requirements including AM/FM narrowband voice and wideband data. The radios are prepared for AM (Amplitude Modulation), FM (Frequency Modulation), D8PSK (Differential 8 phase Shift Keying) and MSK (Minimum Shift Keying).



Standard channel spacing of 25 kHz, with optional 8.33kHz.

The series 4000 is prepared for Have Quick II operation, and is compatible with Link 11 and Vinson.

Remote Systems

The JOTRON series 4000 radio is a fully digital radio system, based on LAN (Local Area Network) operation, or RS232 data line. Installed on a standard Lap Top computer, Remote Access Control System, RACS III can monitor and control all operational and tactical data of the radio. The Rack Controller Unit (Embedded PC with software), designed by JOTRON, can operate all data on the radio. Together with JOTRON ARC unit (Audio Remote Control), the operator has full remote control of both the data and audio of the radio.



JOTRON Digital Multimode VHF/UHF radio transceiver is the ultimate choice for advanced air defence communications. The radio supports multimode operational requirements, including AM/FM narrow band voice and wideband data. The radio is compatible with Have Quick II, Link 11 and Vinson.

UHF/VHF Radios Series

Internal Service

The BIT (Built In Test) provides comprehensive monitoring of the equipment. All deviations of the radios operation will be monitored by the BIT system, and will be displayed on the remote units in operation, Lap Top computer or the Rack Controller Unit. In addition to continuous monitoring, a full performance test can be initiated.

Build Up

Configuration of the series 4000 radio system is highly flexible.

Any combination of tx/rx/vhf/uhf is available as standard. Separate filters and power amplifiers can be provided in any combinations.

An integrated Guard Receiver is available on request.

All digital input output ports are software reconfigurable and can be customised to a certain extent.

Military and Civil Standards

The series 4000 radio system complies with ICAO and NATO standards. The radios are qualified to international EMC standards, ETSI 300 676, and comply the following NATO requirements; MIL -STD 188-243, MIL STD 461D, MIL STD 462D, MIL STD 810E, STANAG 4205, STANAG 4372, STANAG 5511.

Mains

Input voltage to the radio system is 95 – 250 VAC.

The operational voltage is 24-32 VDC.

Power Output

Standard UHF Output Power is 25 watt, 100watt PEP.

Standard VHF Output Power is 50 watt, 200watt PEP.

Standard V/UHF Output Power is 15 watt, 60watt PEP.

Optional Output via separate PA - UHF 100watt, 400watt PEP.

Optional Output via separate PA - VHF 200watt, 800watt PEP.

The advanced BIT provides comprehensive monitoring of the equipment. The antenna port configuration is highly flexible. Any configuration of TX/RX/VHF/UHF can be achieved, including a single combined UHF/VHF connection.



INTERFACE PSU

Technical Specifications

General:

Frequency range:	118-156 MHz and 225-400 MHz
Channel separation:	8.33 or 25 kHz
Channel presetting:	Capable of setting up to 99 channels with frequency, mode, output power, squelch setting etc.
Modulation types:	AM - narrow band , audio response 300-3400 Hz FM - narrow band, audio response 300-3400 Hz AM - wide band, audio response 20 - 11000 Hz (Vinson compatible 16 kbit/s) FM - Link 11 - wide band, audio response 450 Hz - 3050 Hz (± 20 kHz deviation)
Frequency stability:	Better than ± 1 ppm
Power supply:	90-250 V AC, 24-32 V DC
Temperature range:	Operation -20 to +55°C at 95% humidity, storage: -20 to + 60°C at 65% humidity

Receiver Unit:

Sensitivity:	AM: >10 dB SINAD @2_V (30%) FM: >20 dB SINAD @2_V (10 kHz dev)
AGC (NB) :	Attach time: 10-30 ms Decay time: 75-150 ms
AGC(WB) :	Attach time: 150-450 ms Decay time: 300-900 ms
S/N-ratio:	40dB @ -50dBm
Dynamic range(min):	2 μ V – 1 V pd (>114 dB)
Noise blanking:	Internal IF noise blanker
Maximum permissible input Signal:	> 5 V (EMF)
Squelch:	Carrier and/or S/N operated squelch
IF bandwidths:	AM narrow band ± 11 kHz, AM wide band ± 35 kHz, FM ± 50 kHz
Cross Modulation (AM):	> 80 dB
Intermodulation:	> 60 dB (3.order) > 68 dB (5.order) > 90 dB (10 kHz-10 GHz) > 80 dB (10 kHz-10 GHz)
Blocking	$< 40\mu$ V (EMF)
Spurious Responses:	1.5 Mbit serial interface
Spurious Emissions:	1.5 Mbit serial interface
Audio & Control Output:	Internal, specifications as for narrow band AM. Selectable 121.5 or 243 MHz
Control input:	
Guard receiver:	

Transmitter Unit:

Output Power:	VHF 50 watt (200watt PEP), UHF 25 watt (100watt PEP), VHF&UHF - 15 watt (60watt PEP)
VSWR:	1 - ∞ , degraded performance for VSWR $> 1:3$
Modulation:	AM – narrow band up to 95%, AM – wide band up to 95%, FM – 20 kHz deviation
Broadband noise:	< -165 dBc/Hz @ 10 MHz from carrier
Intermodulation Attenuation:	> 40 dB (3rd order)
S/N-ratio:	> 40 dB
Spurious Emmition:	< 80 dB
VOGAD range:	> 30 dB
VOGAD attach time:	< 40 ms
VOGAD decay time:	0.5-1.5 s.
Limiter:	Limiter prevents modulation levels above 100% and 20 kHz (FM)
Distortion:	$< 5\%$ for 85% modulation – narrow band $< 10\%$ for 95% modulation – wide band
Control Output:	1.5 Mbit serial interface
Audio & Control Input:	1.5 Mbit serial interface
Keying time:	< 7 ms

JOTRON Electronics a.s. reserves the right to change the design and/or specifications at any time without prior notice

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