VHF/UHF Airborne Transceiver Family R&S®M3AR

R&S®MR6000L

The R&S®MR6000L transceiver of the R&S®M3AR family is software-reprogrammable and is one of the world's smallest and most lightweight VHF/UHF airborne transceivers. It is possible to download several EPM (ECCM) waveforms for both NATO and non-NATO countries and use them alternately.

The R&S®MR6000L is designed for installation in the cockpit, and its architecture ensures form, fit and function replacement for existing AN/ARC-164 radio systems. The transceiver is controlled locally from the integrated front panel.

- ◆ VHF/UHF, AM/FM, voice/data
- ◆ EPM (ECCM): HAVE QUICK I/II, R&S®SECOS, SATURN
- ◆ 30 MHz to 400 MHz extended frequency range
- ◆ Channel spacing 25 kHz and 8.33 kHz
- ◆ 10 W AM/15 W FM RF output power
- ◆ Modular design, SMD technology
  - – BITE down to module level
  - – High reliability
- ◆ Remote control
  - – RS-485
  - – MIL-BUS (acc. to MIL-STD-1553B)
  - – ARC-164 serial (option)
  - – ARC-164 parallel (option)

- ◆ Weight less than 4.0 kg
- ◆ VHF FM immunity
- ◆ Demodulation of DF/homing signals (ADF support)
- ◆ P^{3}I (pre-planned product improvement), e.g. software upgrade to future waveforms

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Specifications

EPM (ECCM)	
HAVE QUICK I/II	acc. to STANAG 4246
SATURN	acc. to STANAG 4372
R&S®SECOS	
Frequency range	30 MHz to 87.975 MHz 108 MHz to 173.975 MHz 225 MHz to 399.975 MHz
Channel spacing	25 kHz (all bands), 8.33 kHz (VHF ATC band)
Frequency accuracy	±0.5 ppm (−40 °C to +55 °C)
Modulation	A3E, F3E, MSK
Preset channels	2 × 100 3 × GRX
COMSEC	external: VINSON KY-58/100 compatible embedded: R&S®SECOS

Interfaces	
RF ports	single port TX/RX, TNC type
Radio control (options)	Front panel RS-485 MIL-STD-1553B ARC-164 serial ARC-164 parallel
Data input/output (option)	MIL-STD-1553B
Filter/tuned antenna serial bus	Manchester coded frequency information 1 MHz data rate

Transmitter	
RF output power (50 Ω load)	
AM	≥10 W
FM/FSK	≥15 W
Duty cycle	TX/RX ≤1 min/5 min
Distortion	≤10 %, m = 0.8, f_{mod} = 1 kHz
Broadband noise	
±25 kHz from carrier	≤−70 dBm (1 Hz)
±10 MHz from carrier	≤−115 dBm (1 Hz)
≥±20 MHz from carrier	≤−120 dBm (1 Hz)

Main receiver		
Sensitivity (10 dB S+N/N)		
AM	−101 dBm, m = 0.3	
FM	−104 dBm, 2.4 kHz dev.	
Selectivity	6 dB	60 dB
ICAO 8.33 kHz	>7 kHz	<11 kHz
ICAO 25 kHz	>22 kHz	<50 kHz
Wideband	>50 kHz	<60 kHz
Squelch	8 dB to 15.5 dB, adjustable	

Guard receiver	
Frequency	
FM	40.5 MHz
AM	121.5 MHz
AM	243.0 MHz
Scanning possibility	yes
Sensitivity (10 dB S+N/N)	≤−101 dBm, m = 0.3 (121.5 MHz, 243 MHz) ≤−104 dBm, 2.4 kHz dev. (40.5 MHz)
Selectivity	
At 28 kHz	≤6 dB
At 80 kHz	≥60 dB
Squelch	8 dB to 15.5 dB, adjustable

Power supply	
	+28 V DC (MIL-STD-704A) 16 V to 32 V DC
Power consumption	
Transmit	<190 W, typ. 120 W
Receive	<30 W, typ. 25 W
Standby	<100 mW

Environmental conditions[1]	
Operating temperature range	−40 °C to +55 °C
Permissible temperature range	−54 °C to +71 °C [3]
Storage temperature range	−54 °C to +90 °C
Shock/vibration	MIL-STD-810E
EMC[2]	MIL-STD-461D/462D
Altitude	70 000 ft
Dimensions of body (W × H × D)	127 mm × 121 mm × 165 mm (body only)
Weight	<4 kg
Accessories supplied	Remote Control Unit R&S®GB6500 Base Station Adapter R&S®BA6000 Mating Connector R&S®ZR6000

[1] Acc. to MIL-HDBK-5400 (class 2, modified).

[2] Acc. to MIL-HDBK-217F.

[3] Display qualified to −40 °C.

Ordering information

Designation	Type	Order No.
Basic module		
ARC-164 housing; RF 10 W AM/15 W FM Plain – no EPM (ECCM)	R&S®MR6000	6113.5505.02
Mandatory options		
Control Interface (acc. to MS25212)	R&S®CI6000L	6111.3511.xx
RS-485		.02
MIL-BUS direct coupling + RS-485		.03
MIL-BUS trafo coupling + RS-485		.04
ARC-164 parallel		.05
ARC-164 serial		.06
Illumination/display	R&S®IL6000L	6111.3528.xx
White/red		.02
NVG[1] (green A)/(green)		.03
Red/red		.04
Audio Output	R&S®AI6000	6111.3557.xx
150 Ω impedance		.02
600 Ω impedance		.03
Frequency Range	R&S®FR6000	6111.3563.xx
VHF tact. (30 MHz to 88 MHz)		.02
VHF (108 MHz to 174 MHz)		.03
UHF (225 MHz to 400 MHz)		.04
Available options		
EPM (ECCM) Hardware HPP-164	R&S®GP6000	6112.9007.02
EPM (ECCM) Software	R&S®GS6000	6113.0503.xx
HAVE QUICK I		.02
HAVE QUICK I/II		.03
SATURN/HAVE QUICK I/II		.04
R&S®SECOS Voice		.06
R&S®SECOS Voice & Data (TDMA)		.07

[1] Night vision goggles.

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