R&S® MMRS
Modular Multirole Radio System
Radiocommunications platform for multiple applications
R&S®MMRS
Modular Multirole Radio System
At a glance

The R&S®MMRS is a modularly designed, flexible radiocommunications system based on the R&S®M3TR. Owing to its modularity, it can be adapted to various mission requirements.

In today’s deployment scenarios, armed forces are confronted with rapidly changing situations and constantly changing requirements on personnel and equipment in difficult terrain. To meet this challenge, a mobile, flexible and powerful radiocommunications system is indispensable.

The R&S®MMRS is an easy-to-transport, space-saving and adaptable radiocommunications system that satisfies a wide range of requirements. Its multirole capability to operate in VHF/UHF and HF underscores its flexibility.

The R&S®MMRS meets the essential requirements for a military field ATC system, a relay station, a radio station with up to two radio circuits simultaneously, or for company or battalion field headquarters.

All on the basis of the R&S®M3TR in rugged 19” boxes that are easy to transport.

Key facts
- Independent of existing infrastructure
- Scalable
- Modular
- Multirole-capable
- Operator-friendly
- Simple and fast to set up
- Easy to deploy
- Ruggedized for field use under harsh conditions
R&S® MMRS
Modular Multirole Radio System

Benefits and key features

System overview
- Different solutions for different needs
- Flexible system for various situations
- Fast setup for semi-mobile deployment
➤ page 4

Deployment scenarios for the R&S® MMRS
- Field headquarters
- Field ATC
- Radio station
- Relay
➤ page 5

Modular system concept
- Radio rackbox
- Intercom box
- Operator console
- Laptop/tablet
➤ page 6

System and accessories tailored to requirements
- Versatile power supply
- Specially ruggedized multicables
- Suitable antennas for all possible frequency ranges
- Headsets with active noise reduction
➤ page 8

Transport and operation
- Remote operation
- Operation in vehicles and buildings
- Transportability
- Ruggedized to face harsh conditions
➤ page 9
System overview

The R&S®MMRS is a radio system based on the radio rackbox and the intercom box. These units can be combined and expanded with other modules to suit the individual application or mission.

Different solutions for different needs
Weight plays a major role in today’s deployment planning. The modular design of the R&S®MMRS makes it possible to adapt the system to each mission and thus save logistical resources.

Flexible system for various situations
The R&S®MMRS is flexible due to its low weight, easy transportability, and the fact that neither infrastructure nor a vehicle is needed for operation.

Fast setup for semi-mobile use
Due to its specially designed multicable, the R&S®MMRS core system can be set up and dismantled in just a few quick steps.

Set-up scenarios

<table>
<thead>
<tr>
<th></th>
<th>Intercom box</th>
<th>Radio rackbox 1</th>
<th>Radio rackbox 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Field HQ</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Field ATC</td>
<td>○</td>
<td>●</td>
<td>○</td>
</tr>
<tr>
<td>Relay</td>
<td>○</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Gateway</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Onboard communications</td>
<td>–</td>
<td>●</td>
<td>–</td>
</tr>
<tr>
<td>Checkpoint</td>
<td>○</td>
<td>●</td>
<td>○</td>
</tr>
</tbody>
</table>

Legend
● = required
○ = optional
– = not required

Overview

- Radio rackbox 1
- Radio rackbox 2
- Field telephone
- Commander console
- Operator console

WAN via Ethernet or fiber optic

WLAN (option)

LAN
Deployment scenarios for the R&S®MMRS

Today's armies must be able to handle a wide variety of tasks. The R&S®MMRS is a flexible radiocommunications system that meets this requirement.

The R&S®MMRS can be used in many ways:

**Field headquarters**
The R&S®MMRS makes it possible to set up field headquarters at the company or battalion level with alternatives for IP-based LAN, WLAN (purchase option) and WAN connections; see intercom box for details.

**Field ATC**
The R&S®MMRS system is a mobile air traffic control (ATC) system that allows military forces to establish mobile airstrips in a very short period of time to obtain a logistical or combat advantage wherever needed.

**Radio station**
In its basic version, the R&S®MMRS is a radio station that is independent, quick to set up, and designed for land-, sea- or air-based operations.

**Relay**
Through simple configuration, the R&S®MMRS can fulfill the function of a highly mobile relay station and thus increase the radius of operation in the areas of deployment.

**Onboard communications**
Since the human machine interface (HMI) can be operated remotely, the radio rackbox can be stowed in the storage space of a vehicle, and the radio can be operated from the driver’s cabin by using the remote HMI.

The R&S®MMRS can also be used on board ships with the required power supply.

**Checkpoint**
When a checkpoint is set up and operated, the radio rackbox can be deployed on the vehicle or in remote operation for radiocommunications.
Modular system concept

The R&S®MMRS is based on several modules, which allows application-specific system configuration to meet different needs using optimized equipment.

Radio rackbox
The R&S®MMRS is based on the multiband, multimode and multirole R&S®MR3001U VHF/UHF tactical radio. To increase the transmission output power up to 50 W, the R&S®M3TR is installed in the compact R&S®VT3050C amplifier. Together with a power supply unit supporting AC and/or DC input and a rugged 19" box, the R&S®KG3050 radio rackbox is set up for VHF/UHF frequencies.

For HF frequencies, a similar system with the R&S®VT3150C (150 W, option) is available.

Intercom box
To provide the operator with easy and flexible remote operation and control of the radio rackboxes, an intercom system is available. The central unit of the intercom system is installed in a separate, rugged 19" box and forms the intercom box.

The intercom box provides the following:
- Interface for two (optionally up to four) radio rackboxes
- Router for up to four computers in LAN
- Option for WLAN
- WAN via Ethernet or fiber-optic connection for backbone
- One connection for a field telephone
- Connection for fill gun device to upload missions centrally to all radios
Operator console
When operating and controlling the radio system, the operator works with easy-to-use consoles. There are two different types of consoles. The operator console for a normal operator, and the supervisor console for the commander.

Both consoles have an intercom group selector to change between different preconfigured audio channels.

In addition to the operator console features, the supervisor console has a mode selector to change between different preconfigured intercom and radio modes. By selecting a specific mode, the commander can, for example, disable the operator console for security reasons and take exclusive control of all connected radio rackboxes. For remote-control purposes, the supervisor console offers two slots for the dismounted front panels of the radios.

Laptop/tablet
For the transmission of files, a data application such as R&S®Postman III is needed with which e-mails containing attachments can be sent. For this purpose, a tablet PC or a laptop can be connected to the intercom or to the radio.
System and accessories tailored to requirements

**Power supply**
For flexibility during a mission, the R&S®MMRS can be supplied with power in various ways. The requirements are 100 V to 240 V AC or 24 V DC.

Power generators, vehicular power supplies or electricity from public sources may be used. For each radio rackbox, a separate power source is needed. The intercom box power is supplied by one of the radio rackboxes.

**Specially developed multicables**
To allow the system to be put into operation quickly and easily, Rohde & Schwarz has developed special ruggedized multicables (length 2 m or 10 m (78.75 in or 393.7 in)) that integrate all the necessary connections between the radio rackbox, the intercom box and the user terminals into one cable connection.

The core system can thus be set up in just three steps:
- Connect radio rackboxes to the intercom box
- Connect antennas to the radio rackboxes
- Connect the system to the power supply

**Suitable antennas**
Rohde & Schwarz provides matching antennas for all possible frequency ranges to fulfill customer-specific requirements. In addition to the antennas, suitable accessories are also available, e.g. antenna masts and bags.

**Headsets**
For the mission-proven use of the R&S®MMRS, Rohde & Schwarz provides a headset with active noise reduction (ANR), which enables reliable communications even under noisy environmental conditions.
Transport and operation

Remote operation
In many system solutions for such radio stations, vehicles are bound to the radio station. Since the R&S®MMRS in remote operation with an external power supply is not tied to any vehicle, the vehicle can be used for other purposes.

Operation in vehicles and buildings
Of course, the system can also be used inside vehicles or buildings in order to utilize the existing infrastructure.

Transportability
For transport by land, air or sea, the 19" boxes are easy to load and save space. The low weight of the radio rackbox (44 kg/97 lb) and the intercom box (30 kg/66.2 lb) makes it easy to manually transport the system over a short distance.

Outer dimensions
Rackbox:
351 mm × 534 mm × 710 mm
(13.82 in × 21 in × 27.95 in)
Operator console:
335 mm × 170 mm × 50 mm (78 mm with handle)
(13.19 in × 6.7 in × 1.97 in) (3.07 in with handle)
Supervisor console:
445 mm × 170 mm × 50 mm (78 mm with handle)
(17.52 in × 6.7 in × 1.97 in) (3.07 in with handle)

Ruggedized to face harsh conditions
Today's deployment scenarios and their environmental conditions place high demands on personnel and material. The R&S®MMRS is designed for use in harsh conditions.

Ordering information

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio Rackbox</td>
<td>R&amp;S®KG3050</td>
<td></td>
</tr>
<tr>
<td>Intercom Box</td>
<td>R&amp;S®KG3051</td>
<td></td>
</tr>
<tr>
<td>Supervisor Console</td>
<td>R&amp;S®KK3052</td>
<td>Please contact your local Rohde &amp; Schwarz office.</td>
</tr>
<tr>
<td>Operator Console</td>
<td>R&amp;S®KK3052</td>
<td></td>
</tr>
<tr>
<td>Rackbox Multicable Type 1, length 2 m (78.75 in)</td>
<td>R&amp;S®KG3050-Z1</td>
<td></td>
</tr>
<tr>
<td>Rackbox Multicable Type 2, length 10 m (393.7 in)</td>
<td>R&amp;S®KG3050-Z2</td>
<td></td>
</tr>
</tbody>
</table>

1) Lowpass filter and bandpass filter to be ordered separately according to customer requirements.

Your local Rohde & Schwarz expert will help you determine the optimum solution for your requirements.
To find your nearest Rohde & Schwarz representative, visit www.sales.rohde-schwarz.com
About Rohde & Schwarz
Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established more than 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Environmental commitment
- Energy-efficient products
- Continuous improvement in environmental sustainability
- ISO 14001-certified environmental management system

Rohde & Schwarz GmbH & Co. KG
www.rohde-schwarz.com

Regional contact
- Europe, Africa, Middle East
  +49 89 4129 123 45
customersupport@rohde-schwarz.com
- North America
  1 888 TEST RSA (1 888 837 87 72)
customer.support@rsa.rohde-schwarz.com
- Latin America
  +1 410 910 79 88
customersupport.la@rohde-schwarz.com
- Asia/Pacific
  +65 65 13 04 88
customersupport.asia@rohde-schwarz.com