R&S®UMS12-OEM
Monitoring System
Modular monitoring system with open programming interface

75 Years of Driving Innovation

ROHDE & SCHWARZ

R&S®UMS12-OEM Monitoring System
At a glance

The R&S®UMS12-OEM is a new member of the successful R&S®UMS family of compact monitoring systems. For the first time ever, an open interface is offered, allowing users or system houses to develop and implement their own control and application software.

A wide frequency range from 100 kHz to 6 GHz, support of a great variety of monitoring antennas, remote control via LAN and mobile radio networks are only a few of the outstanding features offered by the R&S®UMS12-OEM. The universal DC and AC power supply concept allows outdoor applications as well as easy system integration into vehicles.

The new open interface now enables users to develop their own software solutions, thus allowing the R&S®UMS12-OEM monitoring systems to meet individual customer requirements even better.

Key facts
◗ Frequency range from 100 kHz to 6 GHz
◗ Open programming interface
◗ Easy access to operating system and interfaces
◗ Remote control capability
◗ Weatherproof monitoring system

Interior view of the R&S®UMS12-OEM.

R&S®UMS12-OEM Monitoring System
Benefits and key features

Easy access to software
▪ Open programming interface
▪ Easy access to operating system (Windows XP Embedded)
▪ Optional development kit available
▷ page 4

Ideal for outdoor applications
▪ Weatherproof monitoring system with lockable door
▪ External connectors on bottom of housing
▪ Integrated heating with protection against overheating
▪ Additional protection against bad weather provided by (optional) all-weather cabinet
▷ page 5

Wide range of applications
▪ Wide frequency range from 100 kHz to 6 GHz
▪ Universal power supply concept
▪ Minimum power consumption
▪ Versatile remote control capabilities for remote operation
▪ Compact design
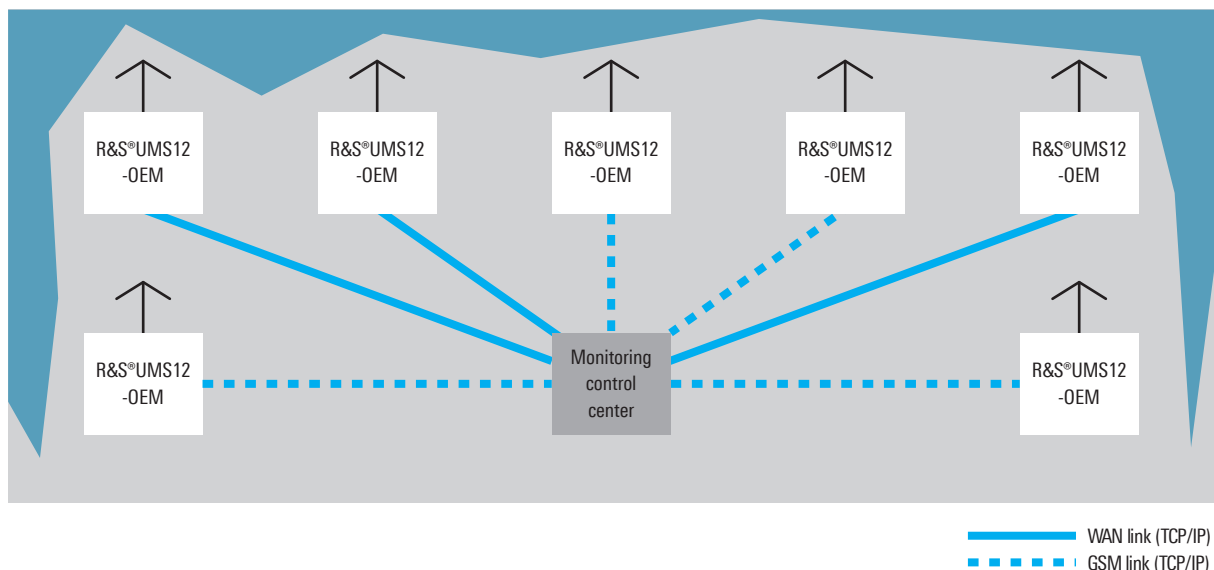▪ Extensive range of accessories
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Application examples
The most typical applications include the following:
▪ Automated measuring and monitoring tasks
▪ Radiomonitoring covering large areas using the appropriate number of R&S®UMS12-OEM systems (national borders, coastlines, harbors, military training grounds, large industrial areas, etc.)
▪ Detection of signals that might impair the sensitivity of communications and radiolocation systems (e.g. around airports)
▪ Monitoring of licensed transmitter systems for compliance with operating parameters
▪ Monitoring of rooms and buildings to detect the use of illegal transmitters (e.g. airports, hospitals)
▪ Detection of interferences and other types of disturbance
▪ Mobile search for new signals and monitoring of existing signals with the R&S®UMS12-OEM integrated in vehicles

Further customer-specific applications can be implemented via the open interface.

Monitoring of a large coastal area from a control center using distributed R&S®UMS12-OEM systems

R&S®UMS12-OEM
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R&S®UMS12-OEM
R&S®UMS12-OEM
R&S®UMS12-OEM
Monitoring control center
R&S®UMS12-OEM

━━━ WAN link (TCP/IP)
▬ ▬ ▬ GSM link (TCP/IP)

Easy access to software

Open programming interface

The R&S®UMS12-OEM combines the advantages of the tried-and-tested R&S®UMS120 monitoring system with an open programming interface.

Easy access to operating system (Windows XP Embedded)

The operating system (Windows XP Embedded) and the interfaces to the RF frontend and communications module are easily accessible. The thorough documentation and interface description enable users to develop control software that meets customer-specific requirements. Depending on the individual requirements, it is possible to run various applications simultaneously. The modules allowing communications via LAN and mobile radio can also be used for application development.

Optional development kit available

The optional R&S®UMS12-Kit includes an adapter with cables that are connected to the open unit. One DVI and two USB interfaces are available on the adapter. The monitor, keyboard and mouse are directly connected to the R&S®UMS12-OEM, which considerably facilitates development and subsequent maintenance. The kit also includes a CD containing the manual as well as the current factory default image of the R&S®UMS12-OEM CF card. With this card, an image can be played back to the R&S®UMS12-OEM (e.g. to restore the Rohde & Schwarz delivery state during system integration).

Block diagram of the R&S®UMS12-OEM
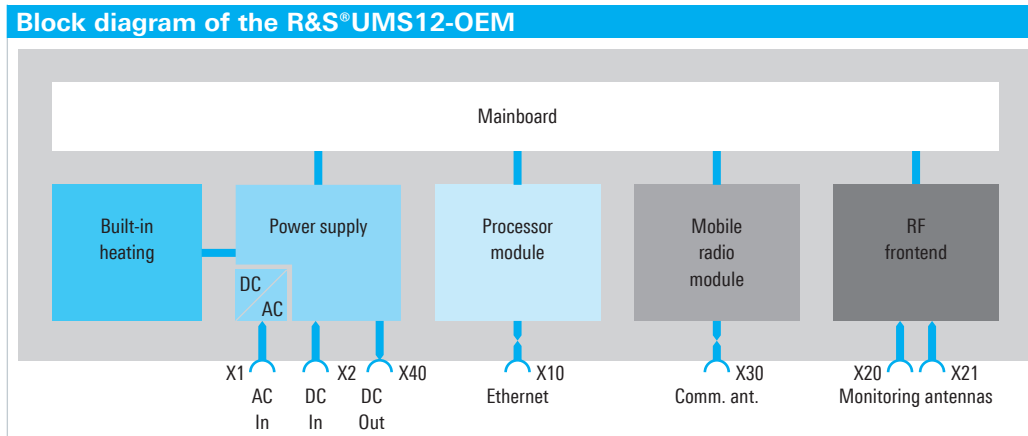
Ideal for outdoor applications

Weatherproof monitoring system with lockable door
A cabinet protects the electronic assemblies of the R&S®UMS12-OEM reliably against bad weather. A lockable door provides access to the fuses, the PRESET key and the SIM card holder of the optional mobile radio module.

External connectors on bottom of housing
The sockets for connecting external components are located on the bottom. They include the sockets for two receiving antennas, one communications antenna, Ethernet LAN, DC and AC power supply as well as protective ground. A DC output socket allows the connection of active antennas via an optional DC feed.

Integrated heating with protection against overheating
The integrated heating allows outdoor applications down to –40 °C. Moreover, the built-in electronic components are protected against any overtemperature that might be generated inside the R&S®UMS12-OEM. When a temperature of approx. +75 °C is reached inside the system, the modules are switched off.

Additional protection against bad weather provided by (optional) all-weather cabinet
The optional R&S®UMS12-B1 all-weather cabinet additionally protects the system against sunlight, bad weather conditions and mechanical stress. The R&S®UMS12-OEM together with the R&S®UMS12-B1 can be mounted on walls or round tubes using the supplied holders.

R&S®UMS12-OEM with options.

Wide range of applications

Wide frequency range from 100 kHz to 6 GHz

This means that especially the range above 3 GHz, i.e. the limit of conventional receivers, is also available. Signals such as WLAN or WiMAX™ can be detected and monitored reliably.

Universal power supply concept

The R&S®UMS12-OEM comes with a universal power supply concept that allows the system to operate on AC (100 V to 240 V, 50 Hz to 60 Hz) as well as DC supply voltages (10 V to 30 V). The two power supply sources can also be connected in parallel, enabling uninterrupted monitoring system operation if the primary supply fails.

Minimum power consumption

Special emphasis has been placed on minimum power consumption. For ambient temperatures above 0 °C, power consumption is as low as approx. 25 W. Additional power is needed only at very low temperatures for heating the system. This means that the R&S®UMS12-OEM can operate on its own for a long period of time if batteries or solar cells are used.

Versatile remote control capabilities for remote operation

Since the R&S®UMS12-OEM requires no local control elements, it can be placed at an optimum monitoring site while the operator remote-controls it from an office, for example. The R&S®UMS12-OEM is usually connected to a control center via the integrated Ethernet LAN interface. Optionally, communications can also be enabled via mobile radio networks. Communications modules to meet various standards (GSM, CDMA, etc.) are available ex factory.

Compact design

The main components of the R&S®UMS12-OEM are the RF frontend with an integrated signal peprocessing unit and a processor module with an embedded operating system. The RF frontend, which is provided with two antenna inputs, processes the received signals, demodulates them if necessary and routes them on to the processor module. The consistent module design considerably reduces the system's size and power consumption.

Extensive range of accessories

A variety of monitoring antennas are available as accessories. Depending on the application, active or passive antennas can be selected for various frequency ranges and polarizations. Material for mounting the system as well as antenna cables of different length are also provided. To connect active antennas, a DC voltage coupler for supply purposes is available. An all-weather cabinet for demanding environmental conditions, a grounding kit and useful tools round out the range of accessories.

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Specifications

RF data		
Frequency range		100 kHz to 6 GHz
Tuning resolution		1 Hz
VSWR		≤2.5
Second-order intercept (SOI)		≥180 dbµV (with attenuation)
Third-order intercept (TOI)		≥150 dbµV (with attenuation)
IF bandwidths		100 Hz, 300 Hz, 1 kHz, 3 kHz, 10 kHz, 30 kHz, 100 kHz, 200 kHz, 300 kHz, 1 MHz
Demodulation		AM, FM
Antenna inputs		2 × N female, 50 Ω
Connector for communications antenna		GSM 900/1800, GSM 850/1900, CDMA 800/1900, N female

General data

DC input		7-contact circular connector
AC input		4-contact circular connector
Temperature range	operating	−30 °C to +40 °C (no exposure to direct sunlight)
	with R&S®UMS12-B1 option	−40 °C to +55 °C (no exposure to direct sunlight)
	storage	−40 °C to +80 °C
Protection class		IP54
Relative humidity		95 % cyclic test, at +25 °C/+40 °C
Vibration	sinusoidal	5 Hz to 150 Hz
	random	10 Hz to 500 Hz
Shock	shock spectrum	40 g
EMC		ETSI EN 301489-1 V 1.61 (09/2005), ETSI EN 301489-22 V 1.3.1 (11/2003), EN 55022:1998 + A1:1999 + A2:2003, EN 300339:1998 – cabinet radiation only (in line with R&TTE Directive 1999/5/EC)
Electrical safety		EN 61010 edition 3/2003
MTBF		21500 h
Power supply	AC voltage	100 V to 240 V, 50 to 60 Hz
	DC voltage	10 V to 30 V
	power consumption	typ. 25 VA/25 W (at ambient temperature ≥0 °C) max. 200 VA/125 W (including heating at ambient temperature <0 °C)
Weight	base unit	8 kg (17.64 lb)
	with R&S®UMS12-B1 option	12.2 kg (26.90 lb)
Dimensions	W × H × D including connectors	300 mm × 445 mm × 175 mm (11.81 in × 17.52 in × 6.89 in)
	W × H × D with R&S®UMS12-B1 option	380 mm × 530 mm × 240 mm (14.96 in × 20.87 in × 9.45 in)

Ordering information

Designation	Type	Order No.
Base unit		
Monitoring System	R&S®UMS12-OEM	3040.4806.02
Options		
Development Kit	R&S®UMS12-Kit	3040.5002.02
Communications modules (only ex factory with delivery of R&S®UMS12-OEM)		
GSM 900/1800	R&S®UMS12-B11	3035.1060.02
GSM 850/1900	R&S®UMS12-B12	3035.1077.02
CDMA 800/1900	R&S®UMS12-B13	3035.1083.02
Antennas		
HF Wideband Antenna (100 kHz to 1.3 GHz)	R&S®UMS12-H11	3035.1225.02
VHF/UHF Antenna (20 MHz to 1.3 GHz)	R&S®UMS12-H12	3035.1231.02
SHF Antenna (1 GHz to 6 GHz)	R&S®UMS12-H13	3035.1248.02
For further antennas, see Rohde & Schwarz antenna catalog, PD 0758.0368.42		
Accessories		
All-Weather Cabinet for R&S®UMS12-OEM (including mast/wall-mounting kit) (lockable)	R&S®UMS12-B1	3035.1048.02
Base Mast with tripod (height: 1.7 m)	R&S®UMS12-H1	3035.1154.02
Boom for supporting two R&S®UMS12-OEM antennas or two R&S®UMS12-H31 to -H35 mounting brackets	R&S®UMS12-H2	3035.1160.02
Grounding Kit for R&S®UMS12-OEM	R&S®UMS12-H3	3035.1177.02
Toolkit	R&S®UMS12-H4	3035.1183.02
DC Feed for active antennas	R&S®UMS12-H6	3035.1202.02
EF400 Antenna Cable 3.5 m (2 × N male)	R&S®UMS12-H21	3035.1260.02
Antenna Cable 3.5 m (1 × N male, 1 × SMA male)	R&S®UMS12-H22	3035.1277.02
RG214 Antenna Cable 5 m (2 × N male)	R&S®UMS12-H23	3035.1283.02
RG214 Antenna Cable 10 m (2 × N male)	R&S®UMS12-H24	3035.1290.02
RG214 Antenna Cable 15 m (2 × N male)	R&S®UMS12-H25	3035.1302.02
RG214 Antenna Cable 20 m (2 × N male)	R&S®UMS12-H26	3035.1319.02
Mounting Bracket for attaching R&S®HE010 to base mast/boom	R&S®UMS12-H31	3035.1331.02
Mounting Bracket for attaching R&S®HE500 to base mast/boom	R&S®UMS12-H32	3035.1348.02
Mounting Bracket for attaching R&S®HL033 to base mast/boom	R&S®UMS12-H33	3035.1354.02
Mounting Bracket for attaching R&S®HL040 to base mast/boom	R&S®UMS12-H34	3035.1360.02
Mounting Bracket for attaching R&S®HL024A1 to base mast/boom	R&S®UMS12-H35	3035.1377.02

Your local Rohde & Schwarz expert will help you determine the optimum solution for your requirements and will be glad to provide you with a customized quotation.
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 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

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