

R&S® ESMW ULTRA WIDEBAND MONITORING RECEIVER

Exceptional performance for next generation radiomonitoring

The growing demand for wireless network connectivity calls for new and more complex transmission standards aimed at optimizing spectral efficiency and exploring ever higher frequency ranges with more available bandwidth. This ongoing trend makes it increasingly difficult for regulatory authorities to verify proper spectrum usage in these wideband and highly dynamic spectrum signal environments.

The R&S® ESMW ultra wideband monitoring receiver with its cutting-edge, future-proof performance specifications is the ideal solution for next generation fixed and mobile radiomonitoring stations.

The R&S® ESMW covers the 8 kHz to 40 GHz frequency range with incredibly large real-time bandwidth of up to 2 GHz. This high real-time bandwidth enables wide instantaneous spectral overviews, reliable measurements of

current and future wideband signals, extremely fast scan speeds of up to 2.6 THz/s and a minimum signal duration of only 75 ns for 100% probability of intercept (POI). For recording and further analysis, the 10 Gigabit Ethernet (10GE) I/Q interface facilitates I/Q data streaming up to 125 MHz bandwidth. Besides standalone operation, the R&S® ESMW easily upgrades existing high-performance radiomonitoring systems running R&S® ARGUS or R&S® RAMON software thanks to its backward compatibility with the R&S® ESMD and R&S® ESME.



- ▶ Frequency range for monitoring and TDOA from 8 kHz to 40 GHz
- ▶ Up to 2 GHz real-time bandwidth for monitoring next generation wideband signals
- ▶ Modular upgradeability to meet current and future requirements
- ▶ Outstanding ITU-compliant RF performance and dynamic range for the most challenging spectrum environments
- ▶ Extremely fast panorama scans with scan speeds of up to 2.6 THz/s
- ▶ Advanced signal measurement capabilities including polychrome spectrum, ITU-compliant signal measurements and multiple digital downconverters
- ▶ Wideband I/Q data streaming of up to 125 MHz via 10GE I/Q interface

Product Flyer
Version 02.01

ROHDE & SCHWARZ
Make ideas real



SPECIFICATIONS IN BRIEF

Specifications in brief

Frequency range	base unit	20 MHz to 6 GHz
	optional	8 kHz to 18 GHz or 20 MHz to 40 GHz
Real-time bandwidth	base unit	125 MHz
	optional	500 MHz and 2 GHz
Demodulation bandwidth		125 MHz
Panorama scan speed	optional	2.6 THz/s, at 2 MHz real-time bandwidth (RBW) 118 GHz/s, at 25 kHz real-time bandwidth (RBW)
I/Q data streaming	optional	up to 125 MHz, via 10GE I/Q interface
Polychrome spectrum	optional	The occurrence of the signal levels is color-coded in the spectrum.
ITU-compliant measurements	optional	AM, FM, PM modulation parameters as well as bandwidth measurements in line with ITU recommendations
Internal GNSS module	optional	geolocation; timestamp accuracy of up to 30 ns
Digital downconverters	optional	4 DDCs with up to 1 MHz bandwidth each
Weight	depends on options	13.5 kg to 20 kg (30 lb to 44 lb) (depends on optional equipment installed)
Dimensions	W x H x D, without feet and handles	426 mm x 176 mm x 450 mm (16.8 in x 6.9 in x 17.7 in), 19", 4 HU

ORDERING INFORMATION

Designation	Type	Order No.
Base unit (including accessories supplied such as power cable, user manual)		
Ultra wideband monitoring receiver	R&S®ESMW	4103.4003.02
Hardware options (built-in hardware)		
8 kHz HF frequency range extension ¹⁾	R&S®HS1-HF	4103.7260.02
18 GHz frequency range extension	R&S®HS1-MW18	4103.7302.02
40 GHz frequency range extension ²⁾	R&S®HS1-MW40	4103.7348.02
500 MHz real-time bandwidth	R&S®HS1-BW500	4103.7483.02
100GE/10GE I/Q interface	R&S®HS1-MIQ	4103.7783.02
Software options (firmware)		
2 GHz real-time bandwidth ³⁾	R&S®HS1-BW2000	4103.7225.02
Panorama scan	R&S®HS1-PS	4103.7025.02
Polychrome spectrum	R&S®HS1-PC	4103.7148.02
ITU measurements	R&S®HS1-IM	4103.7031.02
Internal GNSS module	R&S®HS1-GNSS	4103.7054.02
Digital downconverters	R&S®HS1-DDC	4103.7783.02
Documentation		
Documentation of calibration values	R&S®HS1-DCV	4103.7454.02
Accessories		
Downconverter		
Microwave converter 40 GHz ²⁾	R&S®MC40	4098.6008.02
Rack adapter		
19" rack adapter	R&S®ZZA-411	1096.3283.00

¹⁾ Not available in combination with the R&S®HS1-MW40 option. The R&S®HS1-HF and R&S®HS1-MW40 options are mutually exclusive.

²⁾ Requires R&S®HS1-MW18 option.

³⁾ Requires R&S®HS1-MW18 and R&S®HS1-BW500 options.

Service options

Extended warranty, one/two/three/four year(s)	Contact your local
Extended warranty with calibration coverage, one/two/three/four year(s)	Rohde & Schwarz sales office.

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

Rohde & Schwarz training
www.training.rohde-schwarz.com
Rohde & Schwarz customer support
www.rohde-schwarz.com/support

R&S® is a registered trademark of Rohde & Schwarz GmbH & Co. KG
Trade names are trademarks of the owners
PD 3683.7077.32 | Version 02.01 | May 2023 (sk)
R&S®ESMW Ultra Wideband Monitoring Receiver
Data without tolerance limits is not binding | Subject to change
© 2022 - 2023 Rohde & Schwarz GmbH & Co. KG | 81671 Munich, Germany