R&S® PR200
PORTABLE MONITORING RECEIVER

High-performance spectrum monitoring in a handheld format
AT A GLANCE

The R&S®PR200 portable monitoring receiver is engineered to effectively support you in your spectrum monitoring and interference hunting tasks. It reliably detects, analyzes and locates signals from 8 kHz to 8 GHz. Optimized and designed for field operations, it combines excellent RF performance with an intuitive user interface and offers an expanded range of functions.

- Electronic devices with insufficient shielding or not in line with EMI regulations
- Improper or illegal cell repeaters
- Imported radio equipment operating on wrong frequencies, or incorrectly configured electronic devices, e.g. DECT, wireless microphones
- Unauthorized equipment, e.g. jammers
- Faulty electronic devices
The R&S®PR200 high-performance portable monitoring receiver can effectively help identify undesired signal sources in the shortest possible time and significantly reduce the effort required to locate them.

The R&S®PR200 offers a perfect balance of RF performance, speed, usability and size, weight and power (SWaP) that addresses the challenges in spectrum monitoring and interference hunting. The R&S®PR200 can be used with ITU-compliant measurement tools to verify if analog signal transmission fulfills the technical standards stipulated for licensed operation. The R&S®PR200 includes a broad range of tools and functions to handle tasks such as interference hunting, geolocation of transmitters of interest, resolving frequency conflicts on-site and more. It offers comprehensive visualization modes, a wide range of markers, various recording methods and extensive mapping functions that are essential for evaluation and analysis. What sets the R&S®PR200 apart from comparable instruments is that it delivers simultaneous representation in the time and frequency domain in real time. With gated measurements in the spectral domain, it can capture transient and time-variant dynamic interference signals in TDD networks that are otherwise hard to detect.

For investigating undesired sources of emission, signal searching over wide frequency ranges, signal analysis, direction finding and more, the R&S®PR200 is one of the most sophisticated portable tools to have on-site.

Key facts
► Detect, analyze and locate RF signals from 8 kHz to 8 GHz; extendable to 18 GHz with R&S®HF907DC SHF directional antenna with downconverter
► Wide range of tools for frequency and time domain analysis with up to 40 MHz real-time bandwidth
► High RF performance optimized for use in dense spectrum environments thanks to suboctave preselection and automatic overload protection
► Optimized for demanding field operation with minimal size, weight and power consumption
► Convenient, simple and intuitive to operate with application-oriented user interface
The R&S®PR200 is based on the classic Rohde & Schwarz monitoring receiver design using a two-path digital down-converter (DDC) for parallel monitoring and uninterrupted demodulation. Resolution and measurement time can be varied independently in the 40 MHz real-time spectral and demodulation paths, which offers many advantages when evaluating emissions. A current spectral overview in real time, highly accurate level analysis, a high time resolution spectrogram and parallel traces are displayed all at the same time.

Backed by decades of experience in spectrum monitoring

An adjustable, user-selectable DDC for demodulation is available within the real-time bandwidth. This helps prevent losing sight of the spectrum, and thus maintain an optimal spectral overview, while probing into the signal of interest.

Simplified diagram of digital signal processing in the R&S®PR200

Backed by decades of experience in spectrum monitoring

40 MHz real-time bandwidth with an adjustable DDC (gray)
Designed for use with an antenna
In contrast to spectrum analyzers, the R&S®PR200 is optimized for use with an antenna in dense spectrum environments.

The R&S®PR200 features manually or automatically adjustable built-in gain control to prevent saturation and alleviate overload conditions in the RF frontend.

Sophisticated preselection

- DAB
- Signal of interest
- GSM
- 5G NR
- FM
- LTE
- DVB-T
- UMTS

The receiver offers extensive preselection in the form of suboctave or band tracking filters to select desired signals and suppress strong out-of-band signals. This improves linearity and allows reception without distortion.

The high-gain preamplifier stage provides excellent receiver sensitivity and dynamic range, increasing the probability of detecting weak signals.

Fast, efficient digital signal processing
Using gap-free, real-time fast Fourier transform (FFT) signal processing based on a powerful FPGA, the receiver detects even signals that transmit for a period as short as 1.5 μs with 100% probability of intercept (POI).

Easily configurable and programmable search and scan modes are available for fast signal searching over wide frequency ranges.

The receiver offers up to 500 Mbyte of internal RAM for I/Q recording, replay and analysis. Data can be downloaded to a storage device for subsequent analysis or output as audible content on a speaker or headset.

The receiver’s large history memory buffer can hold minutes of storage. If a signal was missed during the observation period, users can activate the pause/play button to look back in time and examine that signal. Offering high time resolution of max. 500 μs per line over the entire history buffer, the receiver displays very detailed history information.

Scan results of up to three configurable traces in FScan mode.

A missed event revisited using the history function to look back in time and examine that signal.
Fast boot time
- Intuitive, application-oriented operation
- High frequency accuracy, accurate positioning and time stamps with built-in GNSS
- Weighs approx. 3.5 kg including battery
- Typically up to 3.5 h on a single battery charge; compartment for easy battery swapping
- Portrait orientation makes it easy to hold and operate receiver at the same time
- Dialog boxes with step-by-step guidance for compass calibration
- Built-in self-test for easy troubleshooting and maintenance
- Tested in line with MIL-PRF-28800F environmental standard; suitable for outdoor and rugged use
- Quick disconnect and use with Rohde & Schwarz handheld, compact DF antennas
- Wide range of setup and transport accessories, e.g. for homing (on foot), tripod (stationary) and mobile (on the move) applications
WELL-DESIGNED GUI ENHANCES OPERATIONAL READINESS

- Bright, high-contrast color schemes provide good readability even in bright sunlight
- Enhanced color schemes for operation in bright and low ambient light conditions
- Clearly organized data display
- Application-oriented design for convenience, quick access and optimized key clicks
- Up to 3 traces; display of mixed and matched trace and FFT detectors
- Map display with integrated spectral view
- Mathematical functions for easy signal comparison
- Wide range of markers and triggers

Application cockpit for convenient, easy and fast navigation between various functions (right: high color contrast).

Mathematical functions make signal identification easy.
R&S® PR200 OPERATING ELEMENTS

FRONT PANEL

Extended data storage and connectivity: USB, SD, LAN (SCPI) and remote control capability with tablet and/or mobile app

Easy parameter adjustment with function keys

Convenient, application-oriented hot key (APP) for switching between various applications

Adjustable backlighting and keypad for bright and low ambient light conditions

Color-coded device status feedback

Bright, clearly organized 6.5” color display

Weighs approx. 3.5 kg including battery

One-touch documentation: save screenshots and record measurements

One-touch play & pause to look back in time for a missed event

Lock button to prevent accidental clicks

SIDE PANELS

Left side

Test OUT, IF, uncontrolled

10 MHz REF in/out

External GNSS antenna

1 Gbit LAN for data transfer and remote control: I/Q stream (VITA 49), TCP/IP (SCPI)

Anti-theft measures with Kensington security slot

USB connector for external storage, keyboard and mouse
**TOP PANEL**

- **Demodulation bandwidth and demodulation type selection**
- **User-configurable keys**
  - Toggable on/off and adjustment of audio and tone
  - Toggable on/off and adjustment of MST (MGC, squelch and tone)
- **Ring for securing carrying holster**
- **Frequency knob**
- **Quick disconnect RF and antenna control connectors (AUX 1)**
- **Lock button to prevent accidental clicks**
- **3.5 mm audio jack for use with headphone or earphone**
- **Toggable on/off and adjustment of MST (MGC, squelch and tone)**
- **Toggable on/off and adjustment of audio and tone**

**Right side**

- **Battery compartment**
- **SD card slot**
  - SDHC: max. 64 Gbyte; SDXC: max. 256 Gbyte
- **AUX 2 for external interfaces:**
  - RS-232, LVTTL, 1PPS
WIDE RANGE OF TOOL SETS FOR SPECTRUM MONITORING, SIGNAL ANALYSIS AND GEOLOCATION

Comprehensive analysis tools
The R&S®CS-PS option offers high panorama scan speed over wide frequency ranges. This is useful for identifying the frequency range of interest for signals originating from an unknown location or identifying the presence of pulsed or frequency agile signals outside the real-time bandwidth.

Fast spectral scan (panorama scan) across the entire frequency range, including waterfall display.

The R&S®CS-PC option displays a polychrome spectrum to separate superimposed, pulsed signals that cannot be differentiated using conventional methods. Color spectrum schemes indicate how often or how long signals are on air. Cold colors such as blue indicate less frequent/shorter occurrences while warm colors such as red indicate more frequent/longer occurrences.

Polychrome spectrum reveals hidden signals that may not otherwise be visible.

To analyze time division multiplex access (TDMA) signals, such as TETRA, GSM or DECT, or any signals occurring sporadically, signals are displayed in parallel in the time and frequency domain with up to 40 MHz real-time bandwidth.

Parallel time and frequency domain analysis with up to 40 MHz real-time bandwidth.
Time-gated trigger for TDD networks

In TDD networks, the uplink and downlink signals use the same frequency. In the frequency domain, the signals appear as one (interference signal shown in red).

The R&S®CS-ZS option also includes time domain analysis with gated measurements for easy analysis and hunting of interference in TDD networks.

The R&S®CS-IR option allows users to record measured trace, audio and I/Q data for replay, documentation and more detailed analysis.

The R&S®CS-SPM spectral measurements option provides effective interference analysis. It measures leakage power in the adjacent channels, occupied bandwidth and channel power of the signal of interest.

The R&S®CS-MM modulation measurement option is used to measure AM, FM and PM signal parameters in line with ITU recommendations. Measured parameters include the signal modulation index, occupied bandwidth and phase deviation.

The R&S®CS-IQ snapshot, recording and replay option makes it possible to record and replay wideband I/Q signals up to 40 MHz using powerful triggers for capturing and extracting content from short duration signals. In order to reliably capture signals that occur rarely, user-definable trigger masks can be created to eliminate intensive searching through massive amounts of data.
Manual direction finding, triangulation and homing using the R&S®HE400 and legacy handheld directional antennas

The R&S®CS-MAP option provides map display, triangulation and level mapping functions. For all map applications, a convenient integrated spectral view is displayed in addition, allowing users to keep track of the signal during signal hunting. OpenStreetMap (OSM) maps can be easily downloaded using the OSM wizard and transferred to the receiver via an SD card or USB stick. Using the R&S®CS-MAP functions in combination with an R&S®HE400 handheld directional antenna is ideal for applications such as homing, manual direction finding and locating signal sources using the triangulation method. The receiver automatically recognizes all R&S®HE400 antenna modules connected to it. All receiver functions that simplify field operation are available.

When operated with an R&S®HE400CEL cellular or R&S®HE400SCB S/C band antenna module, the receiver can be switched from normal mode to delta mode by pressing a toggle button on the R&S®HE400 handle. This creates a steep notch at the antenna boresight, enabling highly accurate manual direction finding almost equivalent to operation using a Yagi antenna. The two antenna modules offer high directivity over a wide frequency range and eliminate the need to bring along a large number of Yagi antennas to perform signal hunting tasks.

OpenStreetMap (OSM)

OpenStreetMap (OSM) is a user-editable world map available at the following internet address:
http://www.openstreetmap.org/

OSM is a wiki project in which users can participate by uploading and editing geographical information such as GPS tracking data or the course of a road or river. This world map is growing daily.

OpenStreetMap data can be used freely under the terms of the Creative Commons Attribution-ShareAlike 2.0 license.
For signal hunting in the microwave range, the R&S®HF907DC SHF directional antenna with a down-converter is used. The R&S®PR200 frequency range is automatically extended up to 18 GHz, with full receiver functionality.

With the R&S®CS-FS option and one of the above antennas, the signal level can be expressed as field strength. The K-factor values of all supported antennas are stored in the R&S®PR200 and are readily available for conversion to field strength. The field-strength values are automatically tabulated and displayed on the receiver.

The tone function outputs a tone with varying pitch or pulse rate representing the received signal level on a headset or built-in speaker to aid homing operations.

The results of up to three level detector measurements can be displayed simultaneously (including field strength).

**Supported Rohde & Schwarz handheld directional antennas**

<table>
<thead>
<tr>
<th>Type</th>
<th>Antenna module</th>
<th>Frequency range</th>
<th>Normal-to-delta toggling</th>
</tr>
</thead>
<tbody>
<tr>
<td>R&amp;S®HE400</td>
<td>R&amp;S®HE400HF, R&amp;S®HE400VHF, R&amp;S®HE400UWB, R&amp;S®HE400LP</td>
<td>8.3 kHz to 8 GHz</td>
<td>–</td>
</tr>
<tr>
<td>R&amp;S®HE400CEL</td>
<td>R&amp;S®HE400CEL</td>
<td>700 MHz to 2.5 GHz</td>
<td>●</td>
</tr>
<tr>
<td>R&amp;S®HE400SCB</td>
<td>R&amp;S®HE400SCB</td>
<td>1.7 GHz to 6 GHz</td>
<td>●</td>
</tr>
<tr>
<td>R&amp;S®HE907DC</td>
<td>R&amp;S®HE400SHF</td>
<td>5 GHz to 8 GHz</td>
<td>–</td>
</tr>
<tr>
<td></td>
<td>R&amp;S®HF907DC</td>
<td>7.5 GHz to 18 GHz</td>
<td>–</td>
</tr>
</tbody>
</table>

Legacy antennas: R&S®HE300, R&S®HE200
It is also possible to use a mobile device with gesture control for convenient interference hunting. A mobile phone with an R&S®PR200 mobile app can be easily attached to the antenna handle using a commercial off-the-shelf mobile phone holder. A wireless connection can be set up between the receiver USB port and the mobile phone via an external Wi-Fi router. The mobile app simplifies homing operations and allows users to focus on their tasks.

Emitter position estimation with signal strength mapping on integrated map display
Connecting the R&S®PR200 to a commercial off-the-shelf omnidirectional antenna and using the R&S®CS-MAP option makes level mapping easy. This setup is ideal for typical applications such as coverage measurements, interference hunting and transmitter range testing.

Coverage measurement with received signal level displayed on a map. As with all map functions, an integrated spectrum view is also displayed, allowing users to keep track of the signal.

Single-channel correlative interferometer DF method
The correlative interferometer DF method is based on measuring the phase differences between a reference antenna element and the other elements of a DF antenna. A single receiver is used to measure the phase angle $\phi$ between the signals of the two antenna elements independently of the frequency and phase modulation of the signal to be measured. The phase of one of the two signals is shifted in four steps (0°/90°/180°/270°) in a quadrature multiplexer, and the two signals are added after each step. The receiver measures the amplitude of the sum signal after each phase shift. Inserting the four amplitude values obtained (A1/A2/A3/A4) into a formula yields the phase angle $\phi$ between the two signals. This measurement is performed for each antenna element.

Most correlative interferometer direction finders on the market use at least two receivers. The two receive paths must be in phase and need to be calibrated accordingly since otherwise the measurement time will be significantly extended. Additionally, the local oscillator signals need to be multiplied and distributed in-phase. This means that more hardware is necessary than with a single-channel interferometer direction finder: an additional receive path, in-phase multiplication and distribution of the local oscillator signals, a calibration signal generator, calibration signal distribution and an additional cable to the DF antenna for the calibration signal.
While on the move, both the received signal strength and the receiver’s GNSS position are collected and saved. Saving is either manually or triggered automatically over distance or time. During data collection, the results are overlaid on the map as a dotted colored track. Different signal strength levels are indicated by different colors.

The measured data is saved in CSV format for documentation and post analysis.

**Automatic direction finding and radiolocation with Rohde & Schwarz compact DF antennas and R&S® MobileLocator software**

For faster and more precise direction finding, the R&S®PR200 can be easily upgraded and transformed into a high-performance, single-channel direction finding system. Using the R&S®CS-DF option and an R&S®ADDx07 compact VHF/UHF/SHF DF antenna, the DF system offers a typical system DF accuracy of up to 1° RMS thanks to the use of the precise correlative interferometer DF method (above 173 MHz) and a multi-element DF antenna. This high accuracy relies on the precise measurement of the phase angles between a reference antenna element and the other elements of the antenna. In contrast to manual direction finding, the R&S®CS-DF option in conjunction with a compact DF antenna can instantly produce bearings of signals from any direction – a prerequisite for locating pulsed and intermittent signals – without the need for rotating a directional antenna.

**Principle of a running fix in an urban propagation environment**

![Image of a running fix in an urban propagation environment](image)

**R&S® MobileLocator**

- **After 30 s**
- **After 3 min**
- **After 6 min**

![Images showing a running fix](image)

1) The actual accuracy and processing time depends on the propagation environment.
To eliminate misleading information caused by reflections in urban scenarios, up to 600 DF results per minute are fed from the R&S®PR200 to the R&S®MobileLocator PC based automatic radiolocation software. Sophisticated statistical analysis is applied to discard irrelevant readings, which helps overcome the problem of multipath propagation. The probable location of the emitter is indicated by a red circle that is automatically updated on the map display. With a mouse click, a report in PDF format is generated. The R&S®PR200 based DF system can handle virtually all types of interference, irrespective of bandwidth and modulation type.

Analysis of digitally modulated signals in line with ITU-R SM.1600 using R&S®CA100IS software on a separate PC. The I/Q data streams from the R&S®PR200 can be used for online and offline content recovery and external signal analysis using R&S®CA100 PC based signal analysis and signal processing software. The software incorporates an extensive library of digital and analog modulation modes, including those used in digital personal mobile radios (PMR).
**SPECIFICATIONS IN BRIEF**

<table>
<thead>
<tr>
<th>Specifications in brief</th>
<th>base unit</th>
<th>8 kHz to 8 GHz</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency range</strong></td>
<td></td>
<td>8 kHz to 8 GHz</td>
</tr>
<tr>
<td><strong>Preselection</strong></td>
<td>8 kHz to 8 GHz</td>
<td>lowpass, tracking and bandpass filters, combinable</td>
</tr>
<tr>
<td><strong>Real-time bandwidth</strong></td>
<td></td>
<td>40 MHz</td>
</tr>
<tr>
<td><strong>Attenuation</strong></td>
<td>manual or automatic, switchable</td>
<td>up to 40 dB, in steps of 1 dB, depending on receiver mode</td>
</tr>
<tr>
<td><strong>Tuning resolution</strong></td>
<td></td>
<td>1 Hz</td>
</tr>
<tr>
<td><strong>Frequency accuracy</strong></td>
<td>GPS aided, averaged over 24 h</td>
<td>±2 \times 10^{-12}, ±1 \times 10^{-12} (typ.)</td>
</tr>
<tr>
<td><strong>Displayed average noise level (DANL)</strong></td>
<td></td>
<td>typ. –160 dBm (1 Hz)</td>
</tr>
<tr>
<td><strong>Third-order intercept (TOI)</strong> (at receiver input)</td>
<td>35 MHz &lt; f ≤ 3.3 GHz, low noise mode</td>
<td>≥ 5 dBm</td>
</tr>
<tr>
<td></td>
<td>3.3 GHz &lt; f ≤ 8 GHz, low distortion mode</td>
<td>≥ 3 dBm</td>
</tr>
<tr>
<td><strong>Second-order intercept (SOI)</strong></td>
<td>35 MHz to 8 GHz</td>
<td>&gt; 30 dBm (typ.)</td>
</tr>
<tr>
<td><strong>Noise figure</strong></td>
<td>35 MHz &lt; f ≤ 3.3 GHz, low noise mode</td>
<td>≤ 10 dB</td>
</tr>
<tr>
<td></td>
<td>3.3 GHz &lt; f ≤ 5.3 GHz, low noise mode</td>
<td>&lt; 12 dB</td>
</tr>
<tr>
<td></td>
<td>5.3 GHz &lt; f ≤ 7.5 GHz, low noise mode</td>
<td>≤ 17 dB</td>
</tr>
<tr>
<td><strong>LO phase noise</strong></td>
<td>35 MHz to 8 GHz</td>
<td>≤ –85 dBc (1 Hz) at 10 kHz offset</td>
</tr>
<tr>
<td><strong>IF rejection</strong></td>
<td>35 MHz &lt; f ≤ 8 GHz</td>
<td>≥ 75 dB</td>
</tr>
<tr>
<td><strong>Image rejection</strong></td>
<td>35 MHz &lt; f ≤ 8 GHz</td>
<td>≥ 75 dB</td>
</tr>
<tr>
<td><strong>Minimum detectable pulse duration, 100% POI</strong></td>
<td>40 MHz span, 1 MHz RBW, 50% FFT overlap</td>
<td>1.5 µs (nom.)</td>
</tr>
<tr>
<td><strong>GNSS receiver</strong></td>
<td>modes: off, internal, external</td>
<td>built-in</td>
</tr>
<tr>
<td><strong>Dimensions</strong></td>
<td>W × H × D</td>
<td>approx. 192 mm × 320 mm × 62 mm (7.56 in × 12.60 in × 2.44 in)</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>including battery</td>
<td>approx. 3.5 kg (7.72 lb)</td>
</tr>
<tr>
<td><strong>Battery (lithium-ion, 6 cells)</strong></td>
<td>receive mode</td>
<td>approx. 3.5 h</td>
</tr>
<tr>
<td><strong>Power consumption</strong></td>
<td></td>
<td>typ. 16 W</td>
</tr>
</tbody>
</table>

**ORDERING INFORMATION**

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Base unit (including accessories supplied such as power cable, manual)</strong></td>
<td></td>
<td>4500.5002.02</td>
</tr>
<tr>
<td>Portable monitoring receiver</td>
<td>R&amp;S®PR200</td>
<td>4500.5002.02</td>
</tr>
<tr>
<td><strong>Software options</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mapping and geotagging application</td>
<td>R&amp;S®CS-MAP</td>
<td>4500.7140.02</td>
</tr>
<tr>
<td>Field strength measurement</td>
<td>R&amp;S®CS-FS</td>
<td>4500.7211.02</td>
</tr>
<tr>
<td>Timestamp accuracy and external GNSS</td>
<td>R&amp;S®CS-TSA</td>
<td>4500.7170.02</td>
</tr>
<tr>
<td>Polychrome spectrum</td>
<td>R&amp;S®CS-PC</td>
<td>4500.7040.02</td>
</tr>
<tr>
<td>Panorama scan</td>
<td>R&amp;S®CS-PS</td>
<td>4500.7070.02</td>
</tr>
<tr>
<td>Time domain measurement</td>
<td>R&amp;S®CS-ZS</td>
<td>4500.7111.02</td>
</tr>
<tr>
<td>Trace recording and replay 1)</td>
<td>R&amp;S®CS-IR</td>
<td>4500.7240.02</td>
</tr>
<tr>
<td>I/Q snapshot, recording and replay 1)</td>
<td>R&amp;S®CS-IQ</td>
<td>4500.7270.02</td>
</tr>
<tr>
<td>Direction finding upgrade 1)</td>
<td>R&amp;S®CS-DG</td>
<td>4500.7370.02</td>
</tr>
<tr>
<td>Modulation measurement for analysis of AM/FM/PM signals 1)</td>
<td>R&amp;S®CS-MM</td>
<td>4500.7340.02</td>
</tr>
<tr>
<td>Spectral measurement 1)</td>
<td>R&amp;S®CS-SPM</td>
<td>4500.7311.02</td>
</tr>
<tr>
<td><strong>External accessories (PC software, add-ons, peripherals, etc.)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Software option upgrade CD set</td>
<td>R&amp;S®PR200-CD</td>
<td>4500.6950.02</td>
</tr>
<tr>
<td>Documentation of calibration values</td>
<td>R&amp;S®CS-DCV</td>
<td>4500.7011.02</td>
</tr>
</tbody>
</table>

1) Available on request.
## Accessories for power supply and transportation of R&S®PR200

<table>
<thead>
<tr>
<th>Designation</th>
<th>Type</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable adapter, ODU-to-Binder</td>
<td>R&amp;S®CS-ZH0X00</td>
<td>4500.5054.00</td>
</tr>
<tr>
<td>Car adapter, connector for cigarette lighter</td>
<td>R&amp;S®HA-Z302</td>
<td>1321.1340.02</td>
</tr>
<tr>
<td>Battery charger, for R&amp;S®HA-Z306 lithium-ion 6.4 Ah battery pack</td>
<td>R&amp;S®HA-Z303</td>
<td>1321.1328.02</td>
</tr>
<tr>
<td>Lithium-ion 6.4 Ah battery pack</td>
<td>R&amp;S®HA-Z306</td>
<td>1321.1334.02</td>
</tr>
<tr>
<td>Carrying holster including chest harness and rain cover</td>
<td>R&amp;S®HA-Z222</td>
<td>1309.6198.00</td>
</tr>
<tr>
<td>Sun roof and carrying handle, accessory for R&amp;S®HA-Z222</td>
<td>R&amp;S®PR100-AP1</td>
<td>3589.9458.00</td>
</tr>
<tr>
<td>Suitcase kit, for R&amp;S®PR200</td>
<td>R&amp;S®PR100-SC</td>
<td>4071.9258.02</td>
</tr>
<tr>
<td>Hard-shell transit case with headphones, telescopic antenna and storage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>space for R&amp;S®PR200 and mains adapter</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Handheld directional antennas (8.3 kHz to 8 GHz)

For detailed information on the R&S®HE400 and accessories, see R&S®HE400 Handheld Directional Antenna Family product brochure, PD 3607.3468.12

### SHF directional antenna (7.5 GHz to 18 GHz)

For detailed information, see R&S®HF907DC SHF Directional Antenna with Downconverter, [www.rohde-schwarz.com/brochure-datasheet/hf907dc/](http://www.rohde-schwarz.com/brochure-datasheet/hf907dc/)
### Service options

<table>
<thead>
<tr>
<th>Service Description</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extended warranty, one year</td>
<td>R&amp;S®WE1</td>
</tr>
<tr>
<td>Extended warranty, two years</td>
<td>R&amp;S®WE2</td>
</tr>
<tr>
<td>Extended warranty, three years</td>
<td>R&amp;S®WE3</td>
</tr>
<tr>
<td>Extended warranty, four years</td>
<td>R&amp;S®WE4</td>
</tr>
<tr>
<td>Extended warranty with calibration coverage, one year</td>
<td>R&amp;S®CW1</td>
</tr>
<tr>
<td>Extended warranty with calibration coverage, two years</td>
<td>R&amp;S®CW2</td>
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<td>Extended warranty with calibration coverage, three years</td>
<td>R&amp;S®CW3</td>
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<tr>
<td>Extended warranty with accredited calibration coverage, one year</td>
<td>R&amp;S®AW1</td>
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<td>Extended warranty with accredited calibration coverage, two years</td>
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</tr>
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<td>Extended warranty with accredited calibration coverage, four years</td>
<td>R&amp;S®AW4</td>
</tr>
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</table>

*Please contact your local Rohde & Schwarz sales office.*
Rohde & Schwarz

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