Цифровой широкополосный регистратор DWR100

AT A GLANCE

The R&S®DWR100 digital wideband recorder is the ideal solution for storing data when there is not enough time or resources available to analyze or process a live RF scenario during tactical and strategic reconnaissance. It is a compact, lightweight instrument for fixed and mobile solutions. The recordings are stored on easily exchangeable, server-grade solid-state drives (SSD). The multichannel, multiclient recorder can be used for recording various data formats in parallel. It provides the functionality of a loop buffer for analyzing recorded signals.

Recording capabilities

The R&S®DWR100 serves as a central unit for storing I/Q recordings and result data. The instrument's multiclient capability allows a single recorder to be used by many different operators. The recorder can handle multiple recording and replaying tasks of different operators in parallel.

offers a multichannel recording solution by connecting the R&S®DWR100 to various receivers and direction finders.

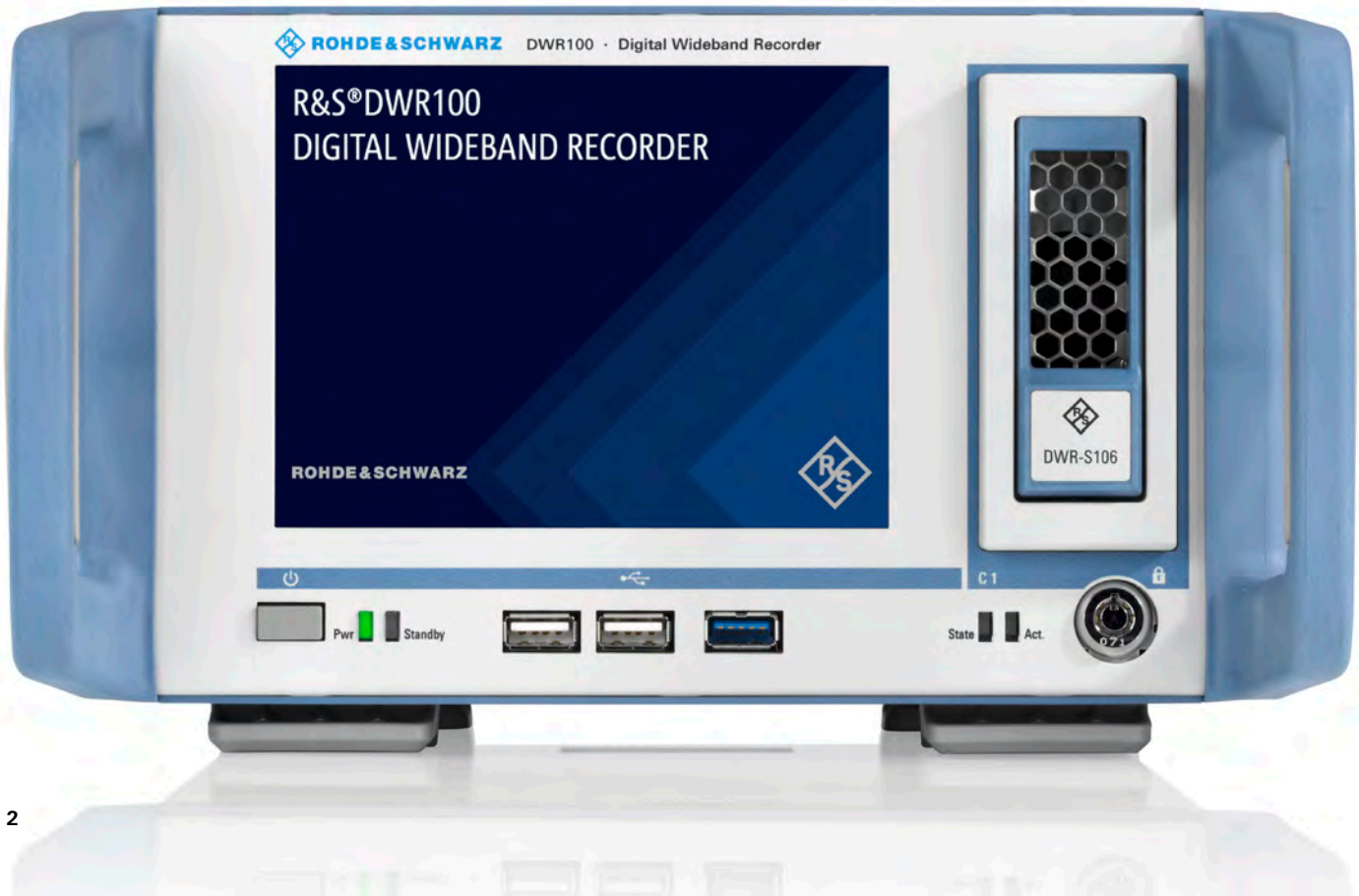
Multiple recordings can be handled in parallel using several sensors, digital downconverters integrated in sensors or the result data from the R&S®CA120 multichannel signal analysis software. It is possible to integrate a recorder together with a receiver/direction finder into a customized system.

The R&S®DWR100 base unit manages simultaneous recording and replay sessions up to 10 MHz. The bandwidth can be increased to 40 MHz with an additional optional interface. The recorder can be used to record raw data (I/Q) and different result data (e.g. audio, text, image). The R&S®DWR100 provides a loop mode for continuous recording and replaying. Continuous recording allows the operator to preselect a specific loop buffer capacity that is continuously used to enable 24/7 operation.

Controlling the digital wideband recorder

Depending on the application, there are different ways to control the R&S®DWR100.

- R&S®CA100 PC-based signal analysis and signal processing software
- R&S®CA120 multichannel signal analysis software
- R&S®RAMON radiomonitoring software
- receivers and direction finders



Postprocessing of recorded signals

Once the data has been stored in the R&S®DWR100, it is available for further analysis. There are several possibilities for further signal analysis and postprocessing:

- R&S®CA100 PC-based signal analysis and signal processing software
- R&S®CA120 multichannel signal analysis software
- R&S®CA210 signal analysis software
- R&S®RAMON radiomonitoring software
- Selected receivers and direction finders

I/Q data files can be analyzed with the R&S®CA100 PC-based signal analysis and signal processing software (see configuration 1 on page 4) and the R&S®CA120 multichannel signal analysis software (see configuration 2). By replaying the I/Q data into a suitable receiver or direction finder, the analysis process can be accelerated up to real time for higher bandwidths.

The recorded I/Q data of signal scenarios can also be exported as a file for offline technical analysis with the R&S®CA210 signal analysis software.

The R&S®DWR100 can be fully integrated into the R&S®RAMON radiomonitoring system for automated online processing and postprocessing of signals scenarios. The generated result data (e.g. audio, text, image), coming for example from the R&S®CA120, can be further postprocessed in the R&S®RAMON radiomonitoring software and archived in a long-term database (see configuration 3 on page 5).

Another compact solution is the combination of an appropriate receiver or direction finder and the R&S®DWR100. The recorded data can be replayed in real time into a receiver or direction finder in order to use the built-in demodulation and measurement functionality to perform instant signal analysis (see con-figuration 4).

Compact, lightweight recorder

The R&S®DWR100 is a lightweight (< 6.5 kg), low power (< 150 W) digital wideband recorder. Its format (3 HU, ½ 19") facilitates rackmounting together with compact receivers. The data is stored on SSDs that are easily removable for transport or for security reasons. The R&S®DWR100 comes with different storage capacities up to 15 Tbyte in server-grade quality and can withstand harsh operating conditions (e.g. high temperatures, shock, vibration, humidity).

KEY FACTS

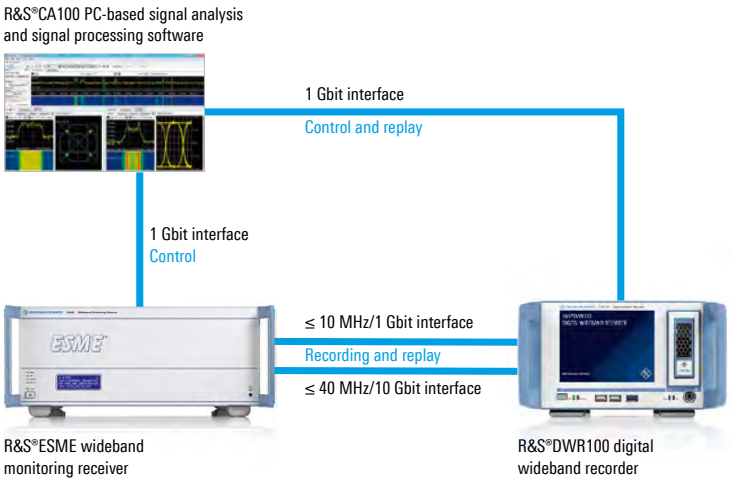
- Up to 256 recordings of different data types in parallel (I/Q, symbol, image, audio, FFT, etc.)
- Recording and replaying with a maximum bandwidth of 10 MHz I/Q data via 1 Gbit interface
- Recording and replaying with a maximum bandwidth of 40 MHz I/Q data via 10 Gbit interface
- Compact instrument: 3 HU, ½ 19" format
- Easily removable server-grade SSD storage: 3.2 Tbyte, 6.4 Tbyte and 15 Tbyte
- Continuous recording and replaying (loop mode)
- Fully integrated solution with monitoring receivers, direction finders, signal analysis and system software
- Multiclient capability

CONFIGURATIONS

Four example configurations show how to use the R&S®DWR100.

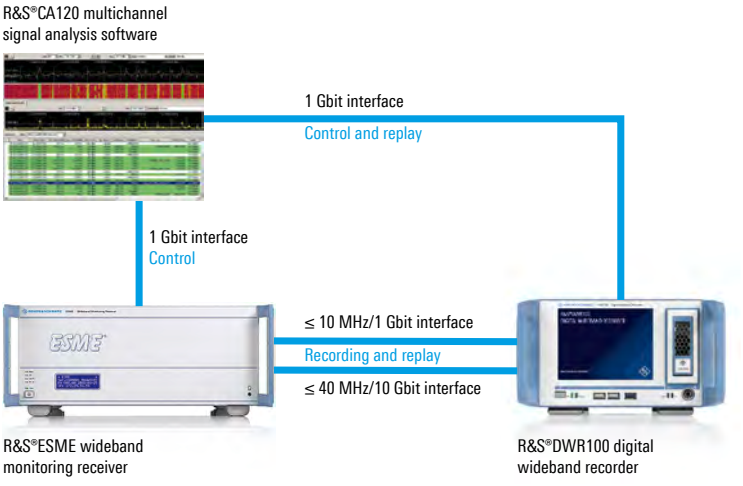
CONFIGURATION 1

This example shows a configuration with the R&S®CA100 PC-based signal analysis and signal processing software, R&S®ESME wideband monitoring receiver and R&S®DWR100 digital wideband recorder.



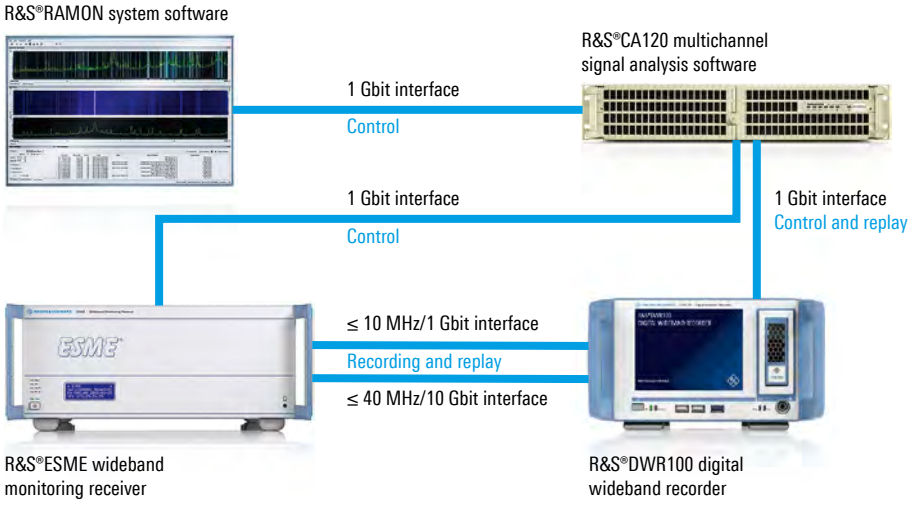
CONFIGURATION 2

This example shows a configuration with the R&S®CA120 multichannel signal analysis software, R&S®ESME wideband monitoring receiver and R&S®DWR100 digital wideband recorder.



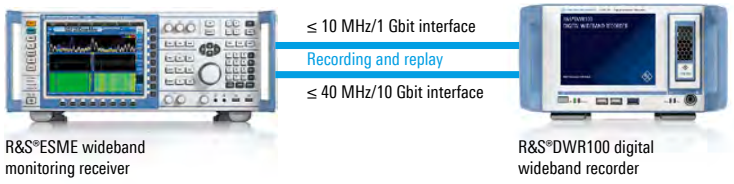
CONFIGURATION 3

This example shows a possible configuration with the R&S®RAMON radiomonitoring software, integrated R&S®CA120 multichannel signal analysis software, R&S®ESME wideband monitoring receiver and R&S®DWR100 digital wideband recorder.



CONFIGURATION 4

This example shows a record and replay configuration with an R&S®ESME wideband monitoring receiver. The recorded data can be replayed directly into the receiver for further analysis.



APPLICATIONS

Live RF signal scenarios can be recorded and analyzed later in detail, e.g. by a specialist in a central department. Downstream signal analysis can be performed when more resources and more time is available. Complex signals (e.g. frequency hopping signals) may require deeper analysis over time. In the case of infrequent signals, a long-term recording helps save human resources and allows users to extract signals related to events of interest.

The R&S®DWR100 can be used as a signal history buffer. If intelligence provides new results, it may be necessary to reinvestigate a signal scenario that occurred in the past. The recorder allows the operator to look back in time for signals of interest in order to analyze them, and to repeat the signal analysis with different settings. This reinvestigation can yield new monitoring results that can be used for further investigation in postprocessing.

R&S®DWR100 with easily exchangeable SSD storage

ORDERING INFORMATION

Designation	Type	Order No.
Base unit		
Digital wideband recorder (up to 10 MHz bandwidth for recording and replaying)	R&S®DWR100	1525.7551.50
Scope of delivery: R&S®DWR100, manual, software and documentation on CD, power cable		
Storage media (one module is required)		
Solid-state drive, 3.2 Tbyte storage capacity	R&S®DWR-S103	1525.8293.50
Solid-state drive, 6.4 Tbyte storage capacity	R&S®DWR-S106	1525.8293.60
Solid-state drive, 15 Tbyte storage capacity	R&S®DWR-S115	1525.8293.65
Interface option		
Interface board with 4 plugs 10 Gbit Ethernet (2 × SFP+, 2 × 10G Base-T), enables recording and replaying up to 40 MHz bandwidth [1]	R&S®DWR-10GX4	1525.8264.60
Auxiliary equipment		
Copper cable, including two SFP+ connectors for 10 Gbit/s, length: 5 m	R&S®GX460-CCG	4094.8635.02
Optical cable, including two SFP+ optical transceivers for 10 Gbit/s, length: 20 m	R&S®GX460-OCG	4094.8641.02
Options for rack mounting		
19" rack adapter, 3 HU (1 × ½ 19" device + dummy)	R&S®IQW-Z19	1525.7574.02

[1] Replay via 10 Gbit interface requires a compatible receiver, e.g. R&S®ESMD or R&S®ESME.