

R&S®SMW200A

Vector Signal Generator

Supplement to R&S SZU100A

The following description relates to the User Manual of the R&S®SMW200A with a connected R&S®SZU100A IQ Upconverter.

It describes the possibility of expanding the frequency overrange of a connected R&S®SZU100A.

Throughout this document, products from Rohde & Schwarz are indicated without the ® symbol , e.g. R&S®SMW200A is indicated as R&S SMW. R&S®SZU100A is abbreviated as R&S SZU100A.



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1 About

An R&S SZU100A IQ Upconverter can support a wider frequency range than the range given in the data sheet due to component and manufacturing tolerances. To benefit from the extended range, the R&S SMW provides accessing this overrange, e.g. if required for certain test setups.

The R&S SMW obtains the calibration data of the R&S SZU100A when you establish the connection, see *Signal Routing and System Configuration > System Configuration Settings > External RF and I/Q Settings* in the R&S SMW User Manual.

If the calibration data confirm an extended range, the R&S SMW enables activation and displays the frequency overrange values in the "RF Frequency" dialog, see [Chapter 2, "Frequency Overrange Settings"](#), on page 2.

2 Frequency Overrange Settings

Refers to "Configuring the RF Signal > Configuring RF Frequency and Level > RF Frequency Settings" in the R&S SMW User Manual.

Access:

- ▶ Select "RF" > "RF Frequency" > "RF Frequency".

RF Frequency/Phase A	
RF Frequency	Phase
Frequency	60.000 000 000 0 GHz
Offset	0.0 Hz
Multiplier	
1.000	
Frequency Overrange	
Frequency Overrange Active	<input checked="" type="checkbox"/>
Minimal Frequency	56.940 000 000 0 GHz
Maximal Frequency	66.180 000 000 0 GHz
User Variation	
Variation Active	<input type="checkbox"/>
Variation Step	
1.000 000 0 MHz	

The "Frequency Overrange" section applies to an R&S SZU100A IQ Upconverter connected to the corresponding path.

Only if the R&S SZU100A provides a frequency range wider than given in the data sheet, the R&S SMW displays the expanded frequency range, and you can enable the overrange for use.

The remote commands required to define the settings are described in [Chapter 3, "Remote Commands"](#), on page 4.

Frequency Overrange Active

Activates the overrange operation.

The [Minimal Frequency](#) and [Maximal Frequency](#) parameters show the actual frequency range the specific R&S SZU100A provides.

Note: The performance in the extended range can deviate from the specified values given in the data sheet of the R&S SZU100A.

Note: Preset behavior.

The impact of an instrument preset depends on the "Preset behavior: keep connections to external instruments" setting in the connection configuration:

- Enabled
The setting is not affected by an instrument preset ([PRESET] key or *RST) and the "Save/Recall" function. It is reset only by factory preset.
- Disabled
The instrument preset also deactivates the frequency overrange.

See *Signal Routing and System Configuration > System Configuration Settings > External RF and I/Q Settings > Connections Configuration and Connection Status Overview Settings*

Remote command:

`[:SOURce] :FREQuency:CONVerter:EXTernal:OVERrange [:STATe]`

on page 5

Minimal Frequency

Displays the minimum frequency value of the connected R&S SZU100A.

Remote command:

```
[ :SOURce ] :FREQuency:CONVerter:EXTernal:OVERrange:FREQuency:MIN?
on page 4
```

Maximal Frequency

Displays the upper frequency value of the connected R&S SZU100A.

Remote command:

```
[ :SOURce ] :FREQuency:CONVerter:EXTernal:OVERrange:FREQuency:MAX?
on page 5
```

3 Remote Commands

The `SOURce:FREQuency:CONVerter` subsystem contains the commands used to define and query the frequency overrange parameters of the specific R&S SZU100A IQ Upconverter.

Example: Querying the frequency overrange provided by an R&S SZU100A IQ Upconverter

```
// Query the information whether the connected R&S SZU
// provides an extended frequency range
// Enable the frequency overrange and query the frequency overrange limits
SOURce1:FREQuency:CONVerter:EXTernal:OVERrange:ALLowed?
SOURce1:FREQuency:CONVerter:EXTernal:OVERrange 1
SOURce1:FREQuency:CONVerter:EXTernal:OVERrange:FREQuency:MIN?
SOURce1:FREQuency:CONVerter:EXTernal:OVERrange:FREQuency:MAX?
```

[:SOURce] :FREQuency:CONVerter:EXTernal:OVERrange:ALLowed [:STATe] ?

Queries if the connected R&S SZU provides the extended frequency range.

If confirmed, the R&S SMW indicates the corresponding parameters in the "RF Frequency" dialog, see [Chapter 2, "Frequency Overrange Settings"](#), on page 2.

Return values:

```
<OverrangAllowed> 0 | 1 | OFF | ON
*RST: 0
```

Example: See [Example "Querying the frequency overrange provided by an R&S SZU100A IQ Upconverter"](#) on page 4

Usage: Query only

[:SOURce] :FREQuency:CONVerter:EXTernal:OVERrange:FREQuency:MIN?

Indicates the minimum frequency value of the connected R&S SZU100A.

The frequency overrange is based on the calibration data of the specific device.

Return values:

<OverrangMinFreq> float
 Range: OverrangeMin to OverrangeMax
 Increment: 0.01
 *RST: OverrangeMin

Example: See [Example "Querying the frequency overrange provided by an R&S SZU100A IQ Upconverter"](#) on page 4

Usage: Query only

Manual operation: See ["Minimal Frequency"](#) on page 4

[[:SOURce]:FREQuency:CONVerter:EXTernal:OVERrange:FREQuency:MAX?

Indicates the minimum and maximum frequency range values of the connected R&S SZU100A.

The frequency overrange is based on the calibration data of the specific device.

Return values:

<OverrangFreqMax> float
 Range: OverrangeMin to OverrangeMax
 Increment: 0.01
 *RST: OverrangeMax

Usage: Query only

Manual operation: See ["Maximal Frequency"](#) on page 4

[[:SOURce]:FREQuency:CONVerter:EXTernal:OVERrange[:STATe]

<OverrangState>

Enables the extended frequency range of a connected R&S SZU100A.

Parameters:

<OverrangState> 0 | 1 | OFF | ON
 *RST: 0

Example: See [Example "Querying the frequency overrange provided by an R&S SZU100A IQ Upconverter"](#) on page 4

Manual operation: See ["Frequency Overrange Active"](#) on page 3