

R&S[®]SMBV-Z1

Reference Frequency Converter Specifications



ROHDE & SCHWARZ

CONTENTS

Definitions	3
Introduction	4
Specifications.....	4
Input signal.....	4
Output signal.....	4
Spectral purity.....	4
Connectors.....	5
<i>Front panel connectors.....</i>	<i>5</i>
<i>Rear panel connectors</i>	<i>5</i>
General data	5
Ordering information	5

Definitions

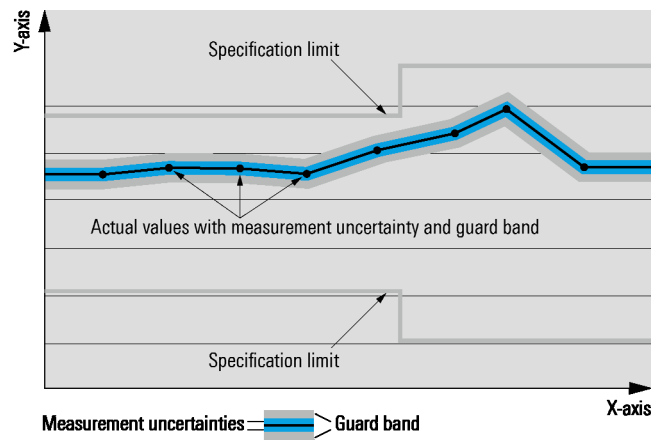
General

Product data applies under the following conditions:

- Three hours storage at ambient temperature followed by 30 minutes warm-up operation
- Specified environmental conditions met
- Recommended calibration interval adhered to
- All internal automatic adjustments performed, if applicable
- Level within specified level range

Specifications with limits

Represent warranted product performance by means of a range of values for the specified parameter. These specifications are marked with limiting symbols such as $<$, \leq , $>$, \geq , \pm , or descriptions such as maximum, limit of, minimum. Compliance is ensured by testing or is derived from the design. Test limits are narrowed by guard bands to take into account measurement uncertainties, drift and aging, if applicable.



Specifications without limits

Represent warranted product performance for the specified parameter. These specifications are not specially marked and represent values with no or negligible deviations from the given value (e.g. dimensions or resolution of a setting parameter). Compliance is ensured by design.

Typical data (typ.)

Characterizes product performance by means of representative information for the given parameter. When marked with $<$, $>$ or as a range, it represents the performance met by approximately 80 % of the instruments at production time. Otherwise, it represents the mean value.

Nominal values (nom.)

Characterize product performance by means of a representative value for the given parameter (e.g. nominal impedance). In contrast to typical data, a statistical evaluation does not take place and the parameter is not tested during production.

Measured values (meas.)

Characterize expected product performance by means of measurement results gained from individual samples.

Uncertainties

Represent limits of measurement uncertainty for a given measurand. Uncertainty is defined with a coverage factor of 2 and has been calculated in line with the rules of the Guide to the Expression of Uncertainty in Measurement (GUM), taking into account environmental conditions, aging, wear and tear.

Typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

Introduction

The R&S®SMBV-Z1 reference frequency converter allows a wide range of Rohde & Schwarz signal generators to be synchronized to reference signals of various frequencies. When equipped with this converter, a Rohde & Schwarz signal generator can be referenced to a system's reference signal, even if it is not directly supported by the signal generator's reference input.

The R&S®SMBV-Z1 reference frequency converter outputs a 10 MHz signal that is phase-locked to the converter's input signal. A narrow phase-lock bandwidth ensures that excessive noise has minimum influence on the input signal so that the signal generator's phase noise performance is maintained. The output of the R&S®SMBV-Z1 should be connected directly to the reference input of the signal generator.

Specifications

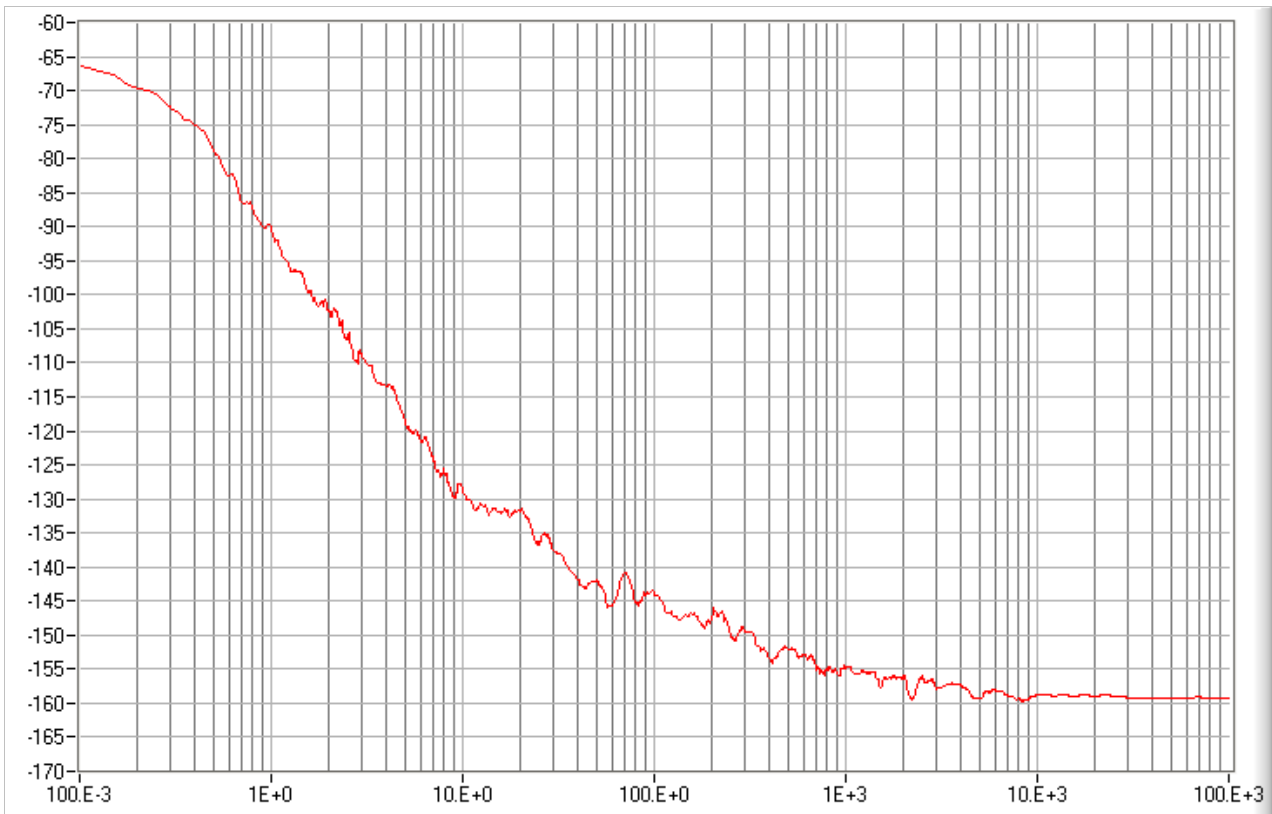
Input signal

Input frequency range		1 MHz to 100 MHz
Permissible input frequencies	M = 2 to 65, N = 2 to 65	M/N · 10 MHz
Input frequency accuracy		$< \pm 7 \times 10^{-7}$
Input level		10 dBm to 16 dBm
Input impedance		50 Ω (nom.)

Output signal

Output frequency	referenced to input signal	10 MHz
Output level		13 dBm (nom.)
Internal PLL bandwidth	for 10 MHz/N = 20 kHz	0.5 Hz (nom.)
Setting time	for 10 MHz/N = 20 kHz	< 60 s (nom.)

Spectral purity



Measured phase noise of 10 MHz output signal.

Connectors

Front panel connectors

REF OUT	10 MHz output	BNC female
---------	---------------	------------

Rear panel connectors

REF IN	reference frequency input	BNC female
--------	---------------------------	------------

General data

Power supply		
DC input voltage		12 V
Max. input current		0.6 A (nom.)
Power consumption	after warm-up	2.1 W (meas.)
EMC		
Electromagnetic compatibility	in line with EU EMC Directive 2004/108/EC	applied harmonized standards: EN 61326-1 (industrial environment) EN 61326-2-1 EN 55011 (class A) EN 61000-3-2 EN 61000-3-3
Environmental conditions		
Temperature range	operating	0 °C to +55 °C
	storage	-20 °C to +70 °C
Dimensions and weight		
Dimensions	W × H × D	102 mm × 37 mm × 175 mm (4.02 in × 1.46 in × 6.89 in)
Weight		0.95 kg (2.09 lb)
Calibration interval		
Recommended calibration interval	operation 40 h/week within the specified temperature ranges	3 years

Ordering information

Designation	Type	Order No.
Reference Frequency Converter (including power supply, operating manual and service manual)	R&S [®] SMBV-Z1	1418.8003.02

Service you can rely on

- | Worldwide
- | Local and personalized
- | Customized and flexible
- | Uncompromising quality
- | Long-term dependability

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 more than 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Environmental commitment

- | Energy-efficient products
- | Continuous improvement in environmental sustainability
- | ISO 14001-certified environmental management system

Certified Quality System
ISO 9001

Rohde & Schwarz GmbH & Co. KG

www.rohde-schwarz.com

Regional contact

- | Europe, Africa, Middle East
+49 89 4129 123 45
customersupport@rohde-schwarz.com
- | North America
1 888 TEST RSA (1 888 837 87 72)
customer.support@rsa.rohde-schwarz.com
- | Latin America
+1 410 910 79 88
customersupport.la@rohde-schwarz.com
- | Asia/Pacific
+65 65 13 04 88
customersupport.asia@rohde-schwarz.com

R&S® is a registered trademark of Rohde & Schwarz GmbH & Co. KG
Trade names are trademarks of the owners | Printed in Germany (sk)
PD 5214.6022.22 | Version 01.01 | July 2011 | R&S®SMBV-Z1
Subject to change

© 2011 Rohde & Schwarz GmbH & Co. KG | 81671 München, Germany



5214602222