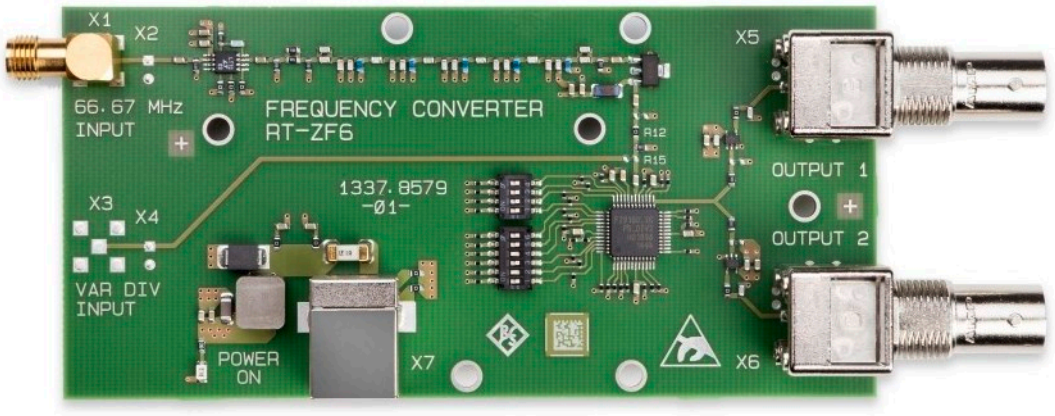
R&S®RT-ZF6
Frequency Converter
Manual



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Manual

Version 02

ROHDE&SCHWARZ

This manual describes the R&S RT-ZF6 frequency converter board (1337.8579.02) for 1000BASE-T1 compliance tests.

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Throughout this manual, products from Rohde & Schwarz are indicated without the ® symbol , e.g. R&S®RT-ZF6 is indicated as R&S RT-ZF6.

1 Safety Information

The product documentation helps you to use the product safely and efficiently. Keep the product documentation nearby and offer it to other users.

Safety information warns you about the potential dangers and gives instructions how to prevent personal injuries or damage caused by dangerous situations. Throughout the documentation, safety instructions are provided when you need to take care during setup or operation.

Intended use

The equipment under test (EUT) is a signal quality test and development board, indented to be used at laboratory or test and measurement areas. These areas are used for analysis, testing and servicing and where equipment is operated by trained personnel (EN 61326-1, 3.9).

Operating site

Only use the product indoors, and keep it dry. The product has no casing and is sensitive to moisture and humidity.

The product is suitable for pollution degree 2 environments where nonconductive contamination can occur. For more information on environmental conditions such as ambient temperature, see the specifications.

Installation

Connect only 1000BASE-T1 devices with the clock output according to the 1000BASE-T1 standard.

Electromagnetic emissions

The EUT is considered as a test probe, EN 61326-2-1, clause 5.2.4.101, note 1. Therefore normal operation may increase emissions and/or reduce immunity in certain applications.

The EUT is an EN 55011 class A equipment. Class A equipment is intended for use in an industrial environment. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted as well as radiated disturbances.

ESD and EMI impact

The product is sensitive to electrostatic discharge (ESD) because of open modules. Protect the work area against electrostatic discharge to avoid damage to electronic components. Always work at a static-approved workstation.

Electromagnetic interference (EMI) can affect the measurement results. To avoid any impact, use only USB cables shorter 3 m.

2 Product Description

The R&S RT-ZF6 frequency converter is a product for compliance testing of the 1000BASE-T1 standard.

It is used in combination with:

- R&S RTO/R&S RTP oscilloscope
- R&S RT-ZF2 Ethernet compliance test fixture
- R&S RTO-K87 (1337.8591.02), R&S RTP (1800.6554.02) for 1000BASE-T1 compliance tests
- R&S ScopeSuite software

For data, see the "R&S RT-ZFxx Oscilloscope Test Fixtures - Specifications" at www.rohde-schwarz.com/brochure-datasheet/rto.

2.1 Deliveries

The R&S RT-ZF6 delivery package contains the test board and the following accessories:

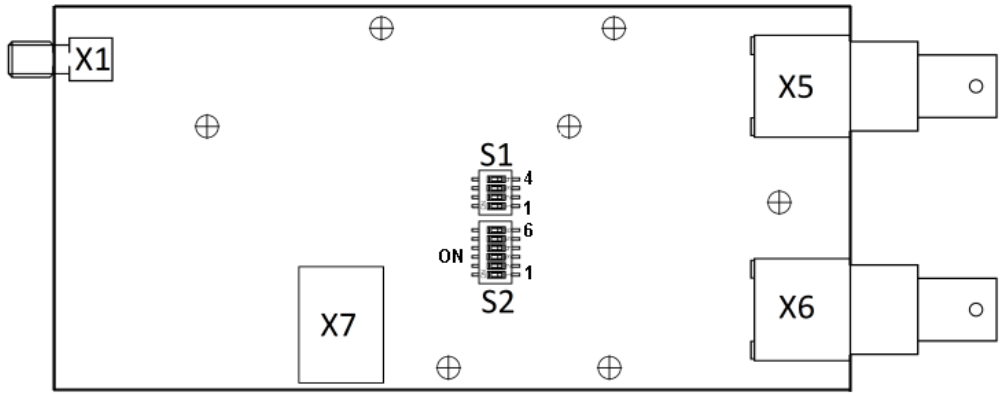
- R&S RT-ZF6 test board
- USB cable (0041.9177.00)
- Manual

2.2 Board Description

The frequency converter is used in test cases that require an ARB generator.

The converter divides the 125 MHz clock signal of the 1000BASE-T1 PHY by 12.5 so that it can be used as clock reference signal. The reference clock synchronizes the oscilloscope and the ARB generator.

The SMA connector X1 is the input for the 125 MHz signal. The 10 MHz output is supplied at the BNC connectors X5 and X6. The board is supplied over the USB connector X7.



3 Connecting the Board

To set up the measurement, perform the following steps:

1. Check the position of the DIP switches S1 and S2:
   a) S1: all switches OFF
   b) S2: switches 1, 4 and 5 OFF, switches 2, 3 and 6 ON
2. Connect the input X1 to the clock signal of the 1000BASE-T1 PHY using double-shielded coaxial cables.
3. Connect one of the outputs X5 or X6 to the REF IN port on the rear panel of the R&S RTO/R&S RTP, and the other output to the ARB generator. Use double-shielded coaxial cables.

4. Connect the USB port X7 of the frequency converter to a USB port type A of the R&S RTO/R&S RTP, or generator, or PC.

   A yellow LED lights up if the board is supplied with power.