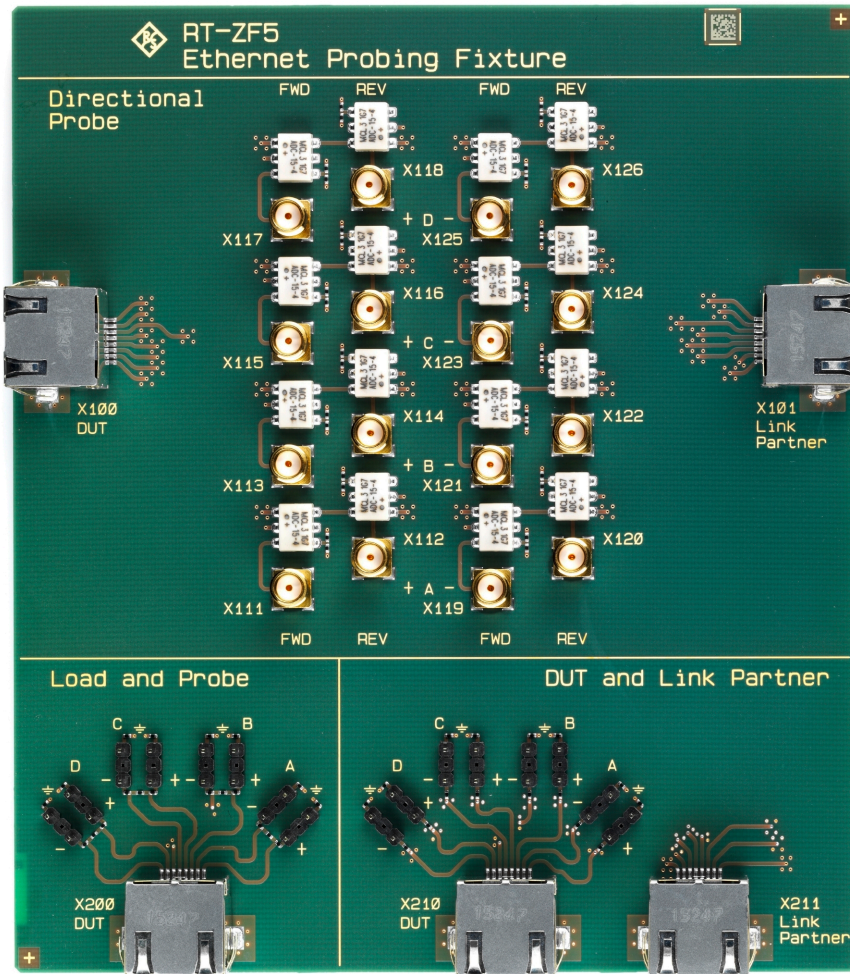


R&S[®] RT-ZF5 Ethernet Probing Fixture Manual



This manual describes the R&S RT-ZF5 Ethernet probing fixture (1333.0896.02).

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Throughout this manual, products from Rohde & Schwarz are indicated without the ® symbol, e.g. R&S®RT-ZF5 is indicated as R&S RT-ZF5.

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.

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

Make sure to connect only Ethernet devices with RJ-45 interface that are designed according to IEEE802.3 10BASE-T, 100BASE-T/TX, 100BASE-T1, 1000BASE-T, or 10GBASE-T.

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-ZF5 test fixture is a multipurpose fixture to probe or tap Ethernet signals up to the 10GBASE-T standard.

The fixture can be used to separate the directions of a full duplex connection for decoding applications like R&S RTO/R&S RTP-K57 (100BASE-T1).

The R&S RT-ZF5 can also be used for compliance testing of energy-efficient Ethernet (100BASE-TX and 1000BASE-T). For compliance testing, it is used in combination with:

- R&S RTO/R&S RTP oscilloscope
- EEE: R&S RTO-K86 (1333.1992.02), R&S RTP-K86 (1337.8833.02): requires R&S RTO/R&S RTP-K22
- 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-ZF5 delivery package contains the following items:

- R&S RT-ZF5 test board
- Manual

2.2 Board Description

The R&S RT-ZF5 Ethernet probing fixture has three labeled sections, which are designed for specific test cases. You can cut the board at the section limits and use each section as a separate board.

"Directional Probe" section

Separates the signals on a (differential) full duplex Ethernet connection (like 1000BASE-T or 100BASE-T1) into a forward signal and a backward signal. The

fixture supports all four Ethernet lanes in parallel. The couplers deliver -15 dB of the original signal amplitude.

" Load and Probe" section

Terminates the signals with 100 Ω and offers pins for differential probing.

"DUT and Link Partner" section

Used to tap the connection between two Ethernet devices. It offers pins for differential and single-ended probes to ground probe connections.

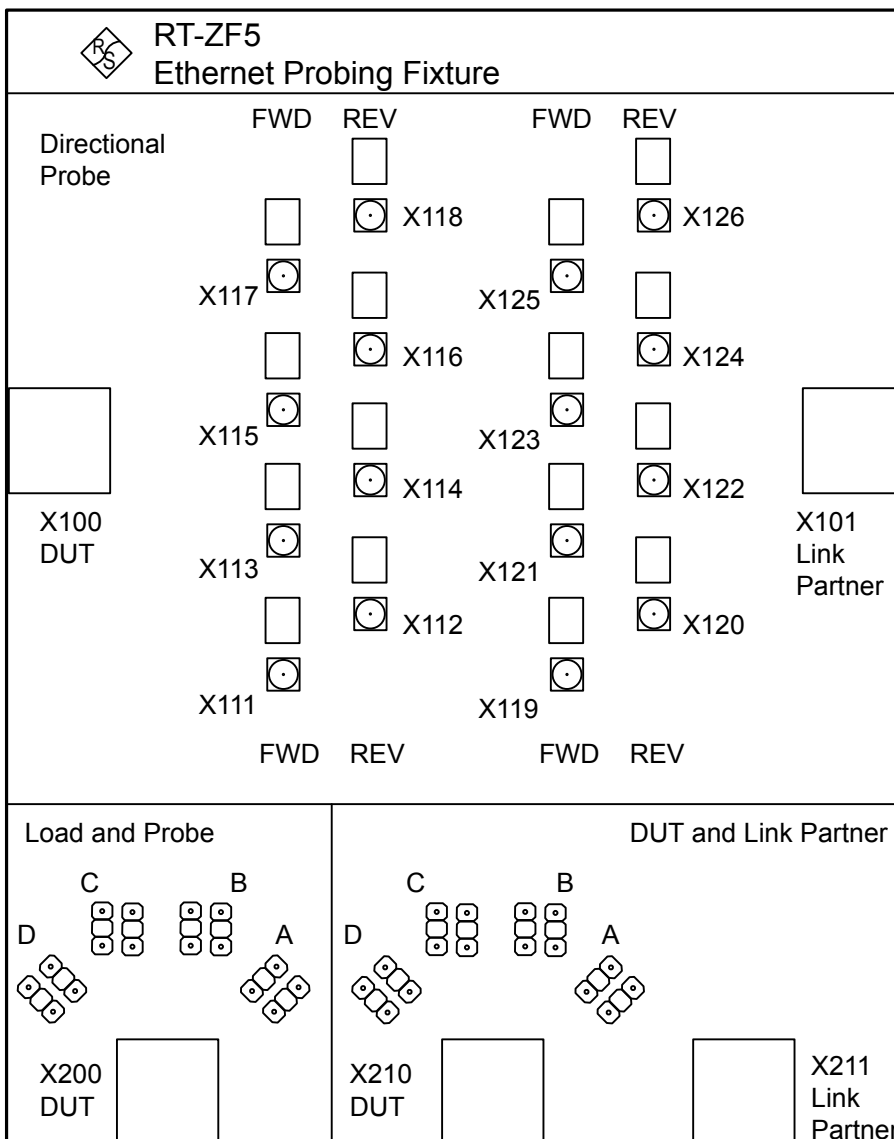


Figure 2-1: R&S RT-ZF5 Ethernet probing fixture

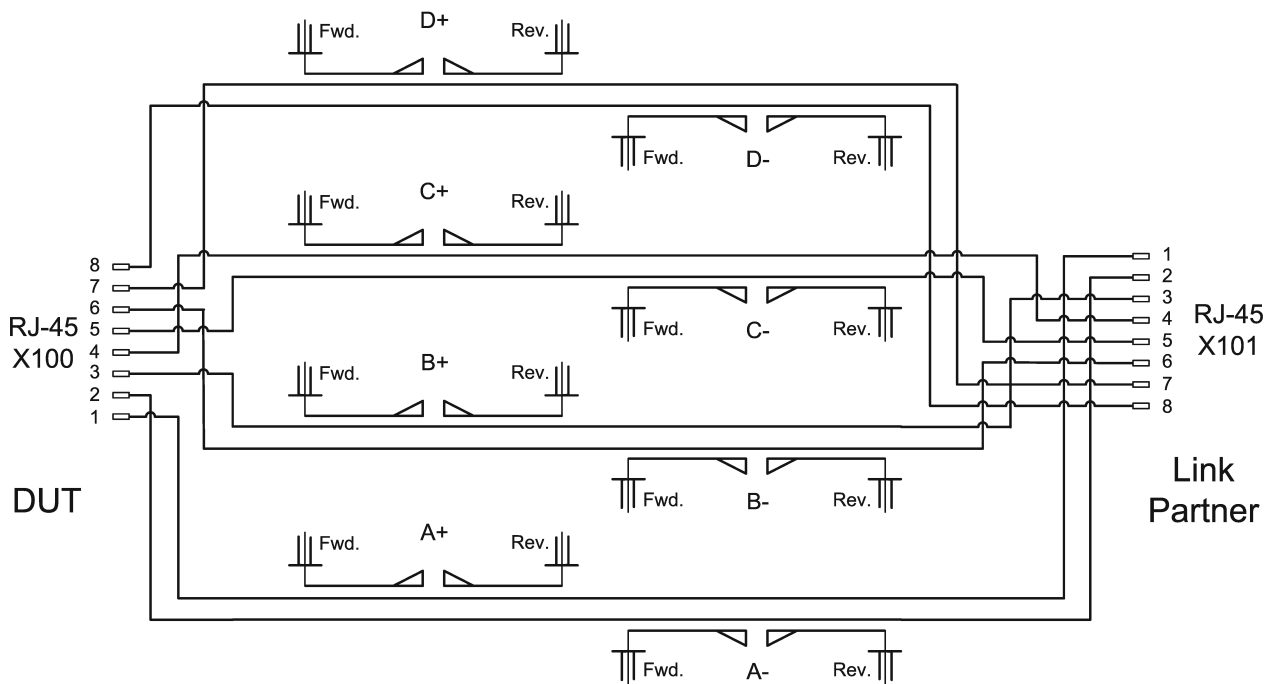


Figure 2-2: Wiring diagram of the Directional Probe section

3 Connecting the Board

The appropriate DUT and probe connection depends on the test case. The R&S ScopeSuite software provides a step-by-step guide that shows the required setup for each test case.

The test preparation and measurements of the test cases are described in the "R&S®RTO, R&S®RTP Ethernet Compliance Tests, Test Procedures Manual".