

R&S® ENV216

Two-Line V-Network

For disturbance voltage measurements on single-phase EUTs



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At a glance

The R&S®ENV216 two-line V-network meets the requirements of CISPR 16-1-2, EN 55016-1-2, VDE 0876 and ANSI C63.4 for V-networks with a simulated impedance of $(50 \mu\text{H} + 5 \Omega) \parallel 50 \Omega$ in the frequency range 9 kHz to 30 MHz. A female connector with protective earth contacts is provided for connecting the EUT. Various models with country-specific connector systems are available.

Owing to its compact design and low weight, the R&S®ENV216 is ideal for frequently varying applications and especially for on-site disturbance voltage measurements on single-phase EUTs. Note that high leakage currents are produced because of the standard design of these V-networks. The networks should therefore be connected to a low-impedance protective earth system. In uncertain cases, an isolating transformer should be used.

In the case of AC supply operation in a range from 90 V to 240 V and 50 Hz to 60 Hz, the operating voltage for the built-in logic circuit is obtained from the AC supply direct. This covers all standard applications. If the EUT is operated with low AC voltages or DC voltages up to 50 V, the logic circuit is powered via an external plug-in power supply that is supplied as standard.

Key facts

- Frequency range 9 kHz to 30 MHz
- Power-handling capacity up to 16 A, constant current (country-specific)
- Simulated impedance $(50 \mu\text{H} + 5 \Omega) \parallel 50 \Omega$ in line with CISPR 16-1-2 Amd. 2:2006
- V-network in line with CISPR, EN, VDE, ANSI, FCC Part 15 and MIL-STD-461 D, E and F
- Calibrated in line with CISPR 16-1-2 and ANSI C63.4



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Benefits and key features

Air-core design and artificial hand

The R&S®ENV216 two-line V-network is based on air-core inductances and contains an artificial hand.

Switch-selectable highpass filter of 150 kHz

To prevent the measuring receiver from being overdriven by low-frequency spectra of high level, a 150 kHz highpass filter can be cut in.

Built-in 10 dB attenuator pad

To ensure standard impedance irrespective of the receiver input attenuation, the R&S®ENV216 is equipped with a 10 dB attenuator pad.

Built-in pulse limiter (can be switched off)

A built-in pulse limiter which can be switched off protects the receiver input.

Remote control with TTL levels (compatible with Rohde & Schwarz measuring receivers)

TTL control inputs that can be driven by controllers and Rohde & Schwarz measuring receivers are provided for remote control in automatic test systems (phase selection and activation of highpass filter). Optocouplers prevent pick-up of external disturbance.



Specifications

| R&S® ENV216 two-line V-network | | |
|---|--|--|
| Frequency range | | 9 kHz to 30 MHz |
| Simulated impedance | phase and magnitude | (50 μH + 5 Ω) 50 Ω |
| Error limits | in line with CISPR 16-1-2 | ±20% (magnitude), ±11.5° (phase) |
| Isolation ¹⁾ | 9 kHz to 50 kHz | > 0 dB to 40 dB (increases linearly with logarithm of frequency) |
| | 50 kHz to 30 MHz | > 40 dB |
| Test path to EUT | | |
| AC supply voltage | If the EUT is operated with AC voltages up to 90 V and DC voltages up to 50 V, the logic circuit has to be powered via the external plug-in power supply that is supplied as standard. | 0 V to 240 V AC + 10% |
| AC supply frequency | | 50 Hz to 60 Hz ± 5% |
| DC voltage | | 0 V to 50 V DC |
| Maximum permissible continuous current | country-specific | |
| Model 12 | | 16 A |
| Model 13 | | 13 A |
| Model 14 | | 16 A |
| Model 15 | | 10 A |
| Model 16 | | 15 A |
| Test path to measuring receiver | | |
| Maximum permissible RF disturbance power from EUT | | 1 W |
| Highpass filter | integrated, switch-selectable | 150 kHz |
| Voltage division factor between EUT and measuring receiver port | built-in attenuator pad, calibration data supplied with V-network | 10 dB |
| Response threshold of built-in pulse limiter | can be switched off | 140 dB (μV) |
| Connectors | | |
| AC supply input | country-specific | plug with protective earth contact and 1.8 m cable |
| AC supply voltage input for EUT | country-specific | socket with protective earth contact |
| RF output | | N female, 50 Ω |
| Remote control input | | 25-contact, D-Sub, female |
| Input for artificial hand | | 4 mm connector, female, with knurled clamp |
| Reference ground connection | | ground bar with three M4 threads |
| Protective earth connection | | M6 threaded bolt |
| Connector for external power supply | on rear panel, by supplied plug-in power supply | DC hollow connector Ø 5.5 mm, 2.1 mm, 10 V to 18 V DC, 250 mA |

¹⁾ Between AC supply and measuring receiver port.

| General data | | |
|-----------------------------|-------------------------|--|
| Operating temperature range | | +5°C to +45°C |
| Storage temperature range | | -40°C to +70°C |
| Dimensions | W × H × D | 219 mm × 147 mm × 350 mm (8.6 in × 5.8 in × 13.8 in) |
| Weight | | 5.5 kg (12.1 lb) |
| Electrical safety | observe notes in manual | in line with EN61010 |
| EMC | | in line with IEC/EN61326 |
| Emission | | class B, in line with residential environment requirements |
| Immunity | | in line with industrial environment requirements |






Ordering information

| Designation | Type | Order No. |
|--|------------|--------------|
| Base unit | | |
| Two-Line V-Network | R&S®ENV216 | 3560.6550.yy |
| Model for Germany (Schuko connector) | | yy = 12 |
| Model for United Kingdom | | yy = 13 |
| Model for France | | yy = 14 |
| Model for China/Australia | | yy = 15 |
| Model for USA | | yy = 16 |
| Accessories supplied | | |
| Manual, calibration data, plug-in power supply | | |
| Recommended extras | | |
| Control Cable, 3 m ¹⁾ | R&S®EZ-21 | 1107.2087.03 |
| Control Cable, 10 m ¹⁾ | R&S®EZ-21 | 1107.2087.10 |
| 150 kHz Highpass ²⁾ | R&S®EZ-25 | 1026.7796.03 |

¹⁾ 25-wire remote-control cable: control by test receivers of series R&S®ESxS, R&S®ESIBx, R&S®ESPIx, R&S®ESCI and R&S®ESUx (male-to-male, wired 1:1; two required for shielded chambers).

²⁾ Required for high disturbance voltages below 150 kHz, e.g. for disturbance voltage measurement in line with EN50065, Part 1.

| Service options | | |
|--|---------------|---|
| Two-Year Calibration Service | R&S®CO2ENV216 | Please contact your local Rohde & Schwarz sales office. |
| Three-Year Calibration Service | R&S®CO3ENV216 | |
| Five-Year Calibration Service | R&S®CO5ENV216 | |
| One-Year Repair Service following the warranty period | R&S®RO2ENV216 | |
| Two-Year Repair Service following the warranty period | R&S®RO3ENV216 | |
| Four-Year Repair Service following the warranty period | R&S®RO5ENV216 | |

| Country-specific connector models | |
|---|--|
|  | Germany as well as Austria, Finland, the Netherlands, Norway, Russia, Sweden, Korea; occasionally: Portugal, Spain |
|  | UK, Ireland, Hong Kong, Malaysia, Singapore |
|  | France, Belgium and Czech Republic |
|  | China, Australia, New Zealand |
|  | USA, Canada, Japan, Taiwan, Mexico, Central America |

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

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