



ROHDE & SCHWARZ

Manual

**DIODE PROBE
SWOB3-Z**

241.2116.00

Printed in West Germany

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1. Characteristics

The Diode Probe SWOB 3-Z is used to advantage if RF voltages are to be measured with minimum loading of the test point. Exchangeable dividers permit its use over a wide voltage range. A BNC adapter is available for measurements on coaxial line systems. The Diode Probe is fitted with a BNC male connector which permits it to be connected to the Lin. Amplifier SWOB 5-E2.

1.1 Specifications

Frequency range	0.5 to 400 MHz (informative up to 1000 MHz)
Input impedance	
at 50 MHz	30 k Ω 2 to 3 pF
at 200 MHz	10 k Ω 2 to 3 pF
Input voltage	50 mV, min. for full display height 5 V, max. permissible 5 V RF superimposed DC voltage up to 100 V
Output signal	positive DC voltage > 5 mV into > 500 k Ω for 50 mV _{rms} input (0.5 to 400 MHz) non-linear characteristic, up to approx. 30 mV RF square-law, from approx. 0.5 V RF linear characteristic
Connection	via 1-m cable fitted with BNC connector
Dimensions (without cable)	14 dia. x 100 mm
Weight	approx. 100 g

Dividers

(specifications valid in conjunction with probe)

	20-dB divider	40-dB divider
Frequency range	2 to 500 MHz (informative measurements up to 1000 MHz)	1 to 500 MHz
Input capacitance	approx. 1 pF	approx. 0.5 pF
Input voltage range	20 mV to 50 V	200 mV to 500 V
Permissible DC voltage	1000 V	1000 V
Attenuator error	+1 dB	+1.5 dB
Suppression of 50-Hz hum	> 60 dB	> 60 dB
Dimensions	10 dia. x 35 mm	

BNC adapter

(specifications valid in conjunction with probe)

Characteristic impedance (nominal) ..	50 Ω
Frequency range	up to approx. 1000 MHz

Accessories supplied

Capacitive 10:1-divider (with ground sleeve)	241.1510.02
Capacitive 100:1 divider (with earth sleeve)	241.1710.02
Probe tip kit	241.0613.02
comprising solder tip	241.0759
hook tip	241.0707
clamp tip	241.0771
earth sleeve	241.0688
ground lead	241.0620

Recommended extras

Retractable hook tip	241.0913.02
BNC adapter (with reducing sleeve) ..	241.1110.02
BNC termination	

2. Operating Instructions

(see Fig. 1)

2.1 Selection of Probe Tip

The front side of the probe is provided with thread onto which the hook tip 241.0707 or the solder tip 241.0759 can be screwed.

The clamp tip 241.0771 and the hook tip 241.0913.02 (to be ordered separately) are slipped on just as the 20-dB or 40-dB divider. Wires of about 0.6 to 0.8 mm diameter can be axially inserted into the clamp tip 241.0771. The clamping mechanism is operated by turning the front part of the tip (chuck principle). The solder and hook tips can be used with the dividers which are also provided with thread. In conjunction with the dividers, the clamp tip and the retractable hook tip should be used only for lower frequencies.

2.2 Connections to Ground

Establish a connection to ground via the ground lead 241.0620 which is to be screwed into a M2 threaded hole in the probe body next to the cable sleeve. At higher frequencies use a thin metal strip for the connection to ground, clamping one end under the earth sleeve of the probe or divider and soldering the other end close to the test point.

For certain measurements the connection between probe and test point has to be shielded. To this effect, push the earth sleeve on the bare part of the probe as far as possible to the front end. The best ground connection is established if the front edge of this sleeve is connected to a grounded circuit element.

2.3 Measurement Using the BNC Adapter

In conjunction with the BNC adapter 241.1110.02, which is to be ordered separately, the probe can be used as an insertion unit. For this purpose, the BNC adapter is connected into the signal path and the probe inserted into the spring-loaded sleeve. If voltages of above $1 V_{\text{rms}}$ are to be measured, use the probe together with the appropriate divider and the reducing sleeve.

3. Repair Instructions

The components of the probe may be damaged by applying an excessive DC or AC voltage. After loosening the M 2-screw provided close to the cable sleeve and removing the case, all components are readily accessible.

Defective dividers cannot be repaired.