Calibration Kit ZCAN

Precision components for all measurements from DC to 3 GHz

The Calibration Kit ZCAN serves for the calibration of test setups for reflection and transmission measurements. The kit comprises six components forming eight different calibration standards: short circuit, open circuit, termination and feed-through, fitted with N male or N female connectors. The short circuit is combined with the open circuit in the same component.

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Uses

Calibration standards, such as those of the ZCAN kit, are used for error correction in scalar and vector network analyzer systems. The measurement accuracy of such a system is determined to a great extent by the quality of the calibration standards used, which must therefore be manufactured with the utmost precision. A typical application is the calibration for a three-point correction, as can be performed with the Vector Analyzer ZPV, for instance. A short circuit, an open circuit and a low-reflection termination are required for this purpose.

Other applications are the open-/short-circuit calibration of a scalar network analyzer such as the ZAS, where the termination of the Calibration Kit can be used for checking the directivity of the VSWR Bridge ZRB 2, or a complex 12-term system error correction of a vector network analyzer system. The Calibration Kit ZCAN comprises all the precision components that are required for any calibration.

The calibration standards can, of course, also be used as universal components, thus helping solve a wide variety of measuring problems.

Description

All components of the Calibration Kit ZCAN are manufactured with the greatest care and with extremely small mechanical tolerances. In the case of the short circuits, for instance, the item important for the electrical contact is a precision-machined, gold-plated solid metal piece with a very smooth surface. This results in low losses and low contact resistance and, thus, in a virtually ideal reflection coefficient with a magnitude of 1 and a phase of 180° over the complete frequency range. The open circuit suppresses any radiation that may be given off at the open-circuit end of a line, and ensures an exactly defined stray capacitance. In the female model of the open-circuit, this is achieved by means of a cap on the inner conductor, which is fixed to a spring-loaded dielectric rod. The terminations are outstanding for their low reflection; the typical return loss is 50 dB, i.e. reflection coefficient = 0.3% or VSWR = 1.006. The feed-throughs, which are optimally matched and precisely dimensioned, have a low insertion loss of typically 0.03 dB at 3 GHz.

Specifications

Frequency range	0 Hz to 3 GHz
Characteristic impedance	50 Ω (75 Ω)
Connectors	type N
Return loss of terminations	≥46 dB (≥40 dB)
Insertion loss of feed-throughs	≤0.1 dB
Return loss of feed-throughs	≥34 dB
Power-handling capacity	1 W

General data

Rated temperature range	0 °C to +55 °C
Storage temperature range	–40 °C to +75 °C
Dimensions of carrying case (W x H x D)	266 mm x 179 mm x 49 mm
Weight (including carrying case)	820 g

Ordering information

Calibration Kit	ZCAN (type N), 50 Ω	800.8515.52
	ZCAN (type N), 75 Ω	800.8515.72

Certified Environmental System ISO 14001 REG. NO 1954

Certified Quality System ISO 9001 DQS REG. NO 1954

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Printed in Germany 0901 (Pr ko)