



All dimensions are in mm; tolerances according to ISO 2768 m-H

Interface

According to IEC 61169-16

Contents and Documentation

This kit is delivered with

- **Standard Definitions Card**
Printed Standard Definitions that can be used on nearly all Vector Network Analyzers
- **Certificate of Testing**
- **Lanyard**
- **Hard Shell Case**
- **Protection Caps**
- **User Manual**

Material and plating

Connector parts

Center conductor
Outer conductor
Coupling nut
Body
Dielectric
Substrate

Material

Brass
Brass
Brass
Brass
PTFE / PPE
Al₂O₃

Plating

Gold, min. 1.27 μm, over nickel
Flash white bronze over silver(e.g. Optargen®)
White bronze(e.g. Optalloy®)
powder-coated

Electrical data

Frequency range DC to 8 GHz

Open

Error from nominal phase¹
 ≤ 3.0°, DC to 6 GHz
 ≤ 5.0°, 6 GHz to 8 GHz

Short

Error from nominal phase²
 ≤ 2.0°, DC to 6 GHz
 ≤ 4.0°, 6 GHz to 8 GHz

Load

Return loss
 ≥ 42 dB, DC to 2.5 GHz
 ≥ 38 dB, 2.5 GHz to 6 GHz
 ≥ 35 dB, 6 GHz to 8 GHz

DC Resistance 50 Ω ± 0.5 Ω

Power handling (at 25 °C, sea level) ≤ 1.0 W, derate by 0.01 W/K

¹ The nominal phase is defined by the Offset Delay, the Offset Loss and the Fringing Capacitances

² The nominal phase is defined by the Offset Delay, the Offset Loss and the Short Inductance

Mechanical data

Mating cycles ≥ 500
 Maximum torque 1.70 Nm
 Recommended torque 1.10 Nm
 Gauge 5.28 mm to 5.84 mm

General standard definitions

For proper operation the vector network analyzer (VNA) needs a model describing the electrical behaviour of this calibration standard. The different models, units, and terms used will depend on the VNA type and they will have to be entered into the VNA. All values are based on typical geometry and plating.

Open

Offset Z_o / Impedance / Z_o 50 Ω
 Offset Delay 67.78 ps
 Length (electrical) / Offset Length 20.32 mm
 Offset Loss 0.80 GΩ/s
 Loss 0.0094 dB/√GHz
 Fringing Capacitances
 C₀ = -11.4000 x 10⁻¹⁵ F / -11.4000 fF
 C₁ = 9000.00 x 10⁻²⁷ F/Hz / 9.00000 fF /GHz
 C₂ = -1180.00 x 10⁻³⁶ F/Hz² / -1.18000 fF /GHz²
 C₃ = 20.0000 x 10⁻⁴⁵ F/Hz³ / 0.02000 fF /GHz³

Short

Offset Z_o / Impedance / Z_o	50 Ω	
Offset Delay	67.78 ps	
Length (electrical) / Offset Length	20.32 mm	
Offset Loss	0.80 GΩ/s	
Loss	0.0094 dB/√GHz	
Short Inductance	$L_0 = 28.0000 \times 10^{-12} \text{ H}$	/ 28.0000 pH
	$L_1 = -4200.00 \times 10^{-24} \text{ H/Hz}$	/ -4.20000 pH/GHz
	$L_2 = -2000.00 \times 10^{-33} \text{ H/Hz}^2$	/ -2.00000 pH/GHz ²
	$L_3 = 333.000 \times 10^{-42} \text{ H/Hz}^3$	/ 0.33300 pH/GHz ³

Load

Offset Z_o / Impedance / Z_o	50 Ω
Offset Delay	0.0000 ps
Length (electrical) / Offset Length	0.000 mm
Offset Loss	0.00 GΩ/s
Loss	0.0000 dB/√GHz

Environmental data

Operating temperature range ³	0 °C to +50 °C
Storage temperature range	-40 °C to +85 °C
RoHS	compliant

³ Temperature range over which these specifications are valid.

Declaration of documentation

Standard delivery for this kit includes Test Results. The documentation issued reports which quantities were tested individually, traceable to national / international standards. Model based standard definitions of the calibration standards are reported in Agilent / Keysight, Rohde & Schwarz and Anritsu compatible VNA format.

Inspection interval

Recommendation	12 months
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Packing

Weight	140 g/pce
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While the information has been carefully compiled to the best of our knowledge, nothing is intended as representation or warranty on our part and no statement herein shall be construed as recommendation to infringe existing patents. In the effort to improve our products, we reserve the right to make changes judged to be necessary.

For the installation of the electrotechnical equipment, particular electrotechnical expertise is required.



Draft	Date	Approved	Date	Rev.	Engineering change number	Name	Date
Marcel Panicke	26.11.14	Lars Ramtke	30.05.23	e00	23-0004	Marion Striegler	24.05.23

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