



**RIGOL**

# Mechanical Calibration Kits

---

Product Manual  
Jan.2026



# Guaranty and Declaration

## Copyright

© 2026 RIGOL TECHNOLOGIES CO., LTD.

## Trademark Information

**RIGOL**® is the trademark of RIGOL TECHNOLOGIES CO., LTD.

## Publication Number

ADS03100-1110

## Software Version

Software upgrade might change or add product features. Please acquire the latest version of the manual from **RIGOL** website or contact **RIGOL** to upgrade the software.

## Notices

- RIGOL products are covered by P.R.C. and foreign patents, issued and pending.
- RIGOL reserves the right to modify or change parts of or all the specifications and pricing policies at the company's sole decision.
- Information in this publication replaces all previously released materials.
- Information in this publication is subject to change without notice.
- **RIGOL** shall not be liable for either incidental or consequential losses in connection with the furnishing, use, or performance of this manual, as well as any information contained.
- Any part of this document is forbidden to be copied, photocopied, or rearranged without prior written approval of **RIGOL**.

## Product Certification

**RIGOL** guarantees that this product conforms to the national and industrial standards in China as well as the ISO9001:2015 standard and the ISO14001:2015 standard. Other international standard conformance certifications are in progress.

## Contact Us

If you have any problem or requirement when using our products or this manual, please contact **RIGOL**.

E-mail: [service@rigol.com](mailto:service@rigol.com)

Website: [www.rigol.com](http://www.rigol.com)

# Contents

Guaranty and Declaration .....	1
Document Overview .....	3
MCAL104-NF1, DC to 4.5 GHz, Type-N (Female) 50 $\Omega$ .....	4
MCAL104-NM1, DC to 4.5 GHz, Type-N (Male) 50 $\Omega$ .....	5
MCAL104-SF1, DC to 4.5 GHz, 3.5 mm (Female) .....	6
MCAL104-SM1, DC to 4.5 GHz, 3.5 mm (Male).....	7
MCAL109-NF1, DC to 9 GHz, Type-N (Female) 50 $\Omega$ .....	8
MCAL109-NM1, DC to 9 GHz, Type-N (Male) 50 $\Omega$ .....	9
MCAL109-SF1, DC to 9 GHz, 3.5 mm (Female) .....	10
MCAL109-SM1, DC to 9 GHz, 3.5 mm (Male) .....	11
MCAL109-NK1, DC to 9 GHz, Type-N (Male and Female) 50 $\Omega$ .....	12
MCAL109-SK1, DC to 9 GHz, 3.5 mm (Male and Female).....	14
MCAL126-35K1, DC to 26.5 GHz, 3.5 mm (Male and Female) .....	16
MCAL226-35F5, DC to 26.5 GHz, 3.5 mm (Female) .....	18

# Document Overview

A mechanical calibration kit (Cal Kit) is a reference calibration tool used in RF and microwave measurements. By providing known and traceable standard impedance states such as open, short, matched load, and through, it serves as the core basis for calibrating vector network analyzers and scalar network analyzers. It accurately corrects system errors such as port reflections and transmission loss in the test setup, ensuring high accuracy, repeatability, and traceability of the measurement results.

This manual introduces the appearance and specifications of RIGOL mechanical calibration kits. You can download the latest manual for the calibration kits and vector network analyzers from RIGOL official website ([www.rigol.com](http://www.rigol.com)).

## RIGOL Mechanical Calibration Kits

Model	Frequency Range	Connector
MCAL104-NM1	DC to 4.5 GHz	Type-N (Male) 50 $\Omega$
MCAL104-NF1	DC to 4.5 GHz	Type-N (Female) 50 $\Omega$
MCAL109-NM1	DC to 9 GHz	Type-N (Male) 50 $\Omega$
MCAL109-NF1	DC to 9 GHz	Type-N (Female) 50 $\Omega$
MCAL109-NK1	DC to 9 GHz	Type-N (Male and Female) 50 $\Omega$
MCAL104-SM1	DC to 4.5 GHz	3.5 mm (Male)
MCAL104-SF1	DC to 4.5 GHz	3.5 mm (Female)
MCAL109-SM1	DC to 9 GHz	3.5 mm (Male)
MCAL109-SF1	DC to 9 GHz	3.5 mm (Female)
MCAL109-SK1	DC to 9 GHz	3.5 mm (Male and Female)
MCAL126-35K1	DC to 26.5 GHz	3.5 mm (Male and Female)
MCAL226-35F5	DC to 26.5 GHz	3.5 mm (Female)

## MCAL104-NF1, DC to 4.5 GHz, Type-N (Female) 50 $\Omega$



The MCAL104-NF1 type-N precision coaxial calibration kit uses known components (standards) to calibrate the transmission system within a certain frequency range, thereby characterizing the system errors of the test system to improve measurement accuracy. The frequency range is DC to 4.5 GHz. The kit mainly includes an open, a short, and a fixed load. It is an indispensable component for accurate calibration of network analyzers, featuring a wide test frequency range, compact size, and stable electrical performance.

### Kit Contents/Materials/Surface Treatment

Serial No.	Component	Quantity	Inner Conductor	External Conductor
1	Open 1 (Female)	1	Beryllium bronze, gold plated	None
2	Open 2 (Female)	1	Beryllium bronze, gold plated	Stainless steel, passivated
3	Short (Female)	1	Beryllium bronze, gold plated	Stainless steel, passivated
4	Load (Female)	1	Beryllium bronze, gold plated	Stainless steel, passivated
5	Adapter Type N(F)-Type N(F)	1	Beryllium bronze, gold plated	Stainless steel, passivated

### Performance Specifications

Component	Frequency	Durability	Parameter
Open (Female)	DC to 4.5 GHz	> 2000	Phase deviation: $\leq \pm 1^\circ$
Short (Female)		> 2000	Phase deviation: $\leq \pm 1^\circ$
Load (Female)		> 2000	VSWR: $\leq 1.035$ (Return loss: $\geq 35.3$ dB)
Adapter Type N (F)-Type N (F)		> 2000	VSWR: $\leq 1.05$ (Return loss: $\geq 32.3$ dB)

# MCAL104-NM1, DC to 4.5 GHz, Type-N (Male) 50 Ω



The MCAL104-NM1 type-N precision coaxial calibration kit uses known components (standards) to calibrate the transmission system within a certain frequency range, thereby characterizing the system errors of the test system to improve measurement accuracy. The frequency range is DC to 4.5 GHz. The kit mainly includes an open, a short, and a fixed load. It is an indispensable component for accurate calibration of network analyzers, featuring a wide test frequency range, compact size, and stable electrical performance.

## Kit Contents/Materials/Surface Treatment

Serial No.	Component	Quantity	Inner Conductor	External Conductor
1	Open (Male)	1	None	Stainless steel, passivated
2	Short (Male)	1	Stainless steel	Stainless steel, passivated
3	Load (Male)	1	Beryllium bronze, gold plated	Stainless steel, passivated
4	Adapter Type N (M)-Type N (M)	1	Beryllium bronze, gold plated	Stainless steel, passivated

## Performance Specifications

Component	Frequency	Durability	Parameter
Open (Male)	DC to 4.5 GHz	> 2000	Phase deviation: $\leq \pm 1^\circ$
Short (Male)		> 2000	Phase deviation: $\leq \pm 1^\circ$
Load (Male)		> 2000	VSWR: $\leq 1.035$ (Return loss: $\geq 35.3$ dB)
Adapter Type N (M)-Type N (M)		> 2000	VSWR: $\leq 1.05$ (Return loss: $\geq 32.3$ dB)

## MCAL104-SF1, DC to 4.5 GHz, 3.5 mm (Female)



The MCAL104-SF1 3.5 mm precision coaxial calibration kit uses known components (standards) to calibrate the transmission system within a certain frequency range, thereby characterizing the system errors of the test system to improve measurement accuracy. The frequency range is DC to 4.5 GHz. The kit mainly includes an open, a short, and a fixed load. It is an indispensable component for accurate calibration of network analyzers, featuring a wide test frequency range, compact size, and stable electrical performance.

### Kit Contents/Materials/Surface Treatment

Serial No.	Component	Quantity	Inner Conductor	External Conductor
1	Open (Female)	1	Beryllium bronze, gold plated	Stainless steel, passivated
2	Short (Female)	1	Beryllium bronze, gold plated	Stainless steel, passivated
3	Load (Female)	1	Beryllium bronze, gold plated	Stainless steel, passivated
4	Adapter Type 3.5 mm (F)-Type 3.5 mm (F)	1	Beryllium bronze, gold plated	Stainless steel, passivated

### Performance Specifications

Component	Frequency	Durability	Parameter
Open (Female)	DC to 4.5 GHz	> 2000	Phase deviation: $\leq \pm 1^\circ$
Short (Female)		> 2000	Phase deviation: $\leq \pm 1^\circ$
Load (Female)		> 2000	VSWR: $\leq 1.032$ (Return loss: $\geq 36$ dB)
Adapter Type 3.5 mm (F)-Type 3.5 mm (F)		> 2000	VSWR: $\leq 1.05$ (Return loss: $\geq 32.3$ dB)

## MCAL104-SM1, DC to 4.5 GHz, 3.5 mm (Male)



The MCAL104-SM1 3.5 mm precision coaxial calibration kit uses known components (standards) to calibrate the transmission system within a certain frequency range, thereby characterizing the system errors of the test system to improve measurement accuracy. The frequency range is DC to 4.5 GHz. The kit mainly includes an open, a short, and a fixed load. It is an indispensable component for accurate calibration of network analyzers, featuring a wide test frequency range, compact size, and stable electrical performance.

### Kit Contents/Materials/Surface Treatment

Serial No.	Component	Quantity	Inner Conductor	External Conductor
1	Open (Male)	1	None	Stainless steel, passivated
2	Short (Male)	1	Stainless steel	Stainless steel, passivated
3	Load (Male)	1	Beryllium bronze, gold plated	Stainless steel, passivated
4	Adapter Type 3.5 mm (M)-Type 3.5 mm (M)	1	Beryllium bronze, gold plated	Stainless steel, passivated

### Performance Specifications

Component	Frequency	Durability	Parameter
Open (Male)	DC to 4.5 GHz	> 2000	Phase deviation: $\leq \pm 1^\circ$
Short (Male)		> 2000	Phase deviation: $\leq \pm 1^\circ$
Load (Male)		> 2000	VSWR: $\leq 1.032$ (Return loss: $\geq 36$ dB)
Adapter Type 3.5 mm (M)-Type 3.5 mm (M)		> 2000	VSWR: $\leq 1.05$ (Return loss: $\geq 32.3$ dB)

## MCAL109-NF1, DC to 9 GHz, Type-N (Female) 50 Ω

The MCAL109-NF1 type-N precision coaxial calibration kit uses known components (standards) to calibrate the transmission system within a certain frequency range, thereby characterizing the system errors of the test system to improve measurement accuracy. The frequency range is DC to 9 GHz. The kit mainly includes an open, a short, and a fixed load. It is an indispensable component for accurate calibration of network analyzers, featuring a wide test frequency range, compact size, and stable electrical performance.



### Kit Contents/Materials/Surface Treatment

Serial No.	Component	Quantity	Inner Conductor	External Conductor
1	Open (Female)	1	Beryllium bronze, gold plated	Stainless steel, passivated
2	Short (Female)	1	Beryllium bronze, gold plated	Stainless steel, passivated
3	Load (Female)	1	Beryllium bronze, gold plated	Stainless steel, passivated
4	Adapter Type N(F)-Type N(F)	1	Beryllium bronze, gold plated	Stainless steel, passivated

### Performance Specifications

Component	Frequency	Durability	Parameter
Open (Female)	DC to 9 GHz	> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Short (Female)		> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Load (Female)		> 2000	VSWR: $\leq 1.025$ (Return loss: $\geq 38.2$ dB)
Adapter Type N (F)-Type N (F)		> 2000	VSWR: $\leq 1.06$ (Return loss: $\geq 30.7$ dB)

## MCAL109-NM1, DC to 9 GHz, Type-N (Male) 50 Ω

The MCAL109-NM1 type-N precision coaxial calibration kit uses known components (standards) to calibrate the transmission system within a certain frequency range, thereby characterizing the system errors of the test system to improve measurement accuracy. The frequency range is DC to 9 GHz. The kit mainly includes an open, a short, and a fixed load. It is an indispensable component for accurate calibration of network analyzers, featuring a wide test frequency range, compact size, and stable electrical performance.



### Kit Contents/Materials/Surface Treatment

Serial No.	Component	Quantity	Inner Conductor	External Conductor
1	Open (Male)	1	Beryllium bronze, gold plated	Stainless steel, passivated
2	Short (Male)	1	Beryllium bronze, gold plated	Stainless steel, passivated
3	Load (Male)	1	Beryllium bronze, gold plated	Stainless steel, passivated
4	Adapter Type N (M)-Type N (M)	1	Beryllium bronze, gold plated	Stainless steel, passivated

### Performance Specifications

Component	Frequency	Durability	Parameter
Open (Male)	DC to 9 GHz	> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Short (Male)		> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Load (Male)		> 2000	VSWR: $\leq 1.025$ (Return loss: $\geq 38.2\text{dB}$ )
Adapter Type N (M)-Type N (M)		> 2000	VSWR: $\leq 1.06$ (Return loss: $\geq 30.7\text{dB}$ )

## MCAL109-SF1, DC to 9 GHz, 3.5 mm (Female)



The MCAL109-SF1 precision coaxial calibration kit uses known components (standards) to calibrate the transmission system within a certain frequency range, thereby characterizing the system errors of the test system to improve measurement accuracy. The frequency range is DC to 9 GHz. The kit mainly includes an open, a short, and a fixed load. It is an indispensable component for accurate calibration of network analyzers, featuring a wide test frequency range, compact size, and stable electrical performance.

### Kit Contents/Materials/Surface Treatment

Serial No.	Component	Quantity	Inner Conductor	External Conductor
1	Open (Female)	1	Beryllium bronze, gold plated	Beryllium bronze, gold plated
2	Short (Female)	1	Beryllium bronze, gold plated	Beryllium bronze, gold plated
3	Load (Female)	1	Beryllium bronze, gold plated	Beryllium bronze, gold plated
4	Adapter Type 3.5 mm (F)-Type 3.5 mm (F)	1	Beryllium bronze, gold plated	Stainless steel, passivated
5	Connector body	1		

### Performance Specifications

Component	Frequency	Durability	Parameter
Open (Female)	DC to 9 GHz	> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Short (Female)		> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Load (Female)		> 2000	VSWR: $\leq 1.02$ (Return loss: $\geq 40$ dB)
Adapter Type 3.5 mm (F)-Type 3.5 mm (F)		> 2000	VSWR: $\leq 1.06$ (Return loss: $\geq 30.7$ dB)

## MCAL109-SM1, DC to 9 GHz, 3.5 mm (Male)



The MCAL109-SM1 precision coaxial calibration kit uses known components (standards) to calibrate the transmission system within a certain frequency range, thereby characterizing the system errors of the test system to improve measurement accuracy. The frequency range is DC to 9 GHz. The kit mainly includes an open, a short, and a fixed load. It is an indispensable component for accurate calibration of network analyzers, featuring a wide test frequency range, compact size, and stable electrical performance.

### Kit Contents/Materials/Surface Treatment

Serial No.	Component	Quantity	Inner Conductor	External Conductor
1	Open (Male)	1	Beryllium bronze, gold plated	Beryllium bronze, gold plated
2	Short (Male)	1	Beryllium bronze, gold plated	Beryllium bronze, gold plated
3	Load (Male)	1	Beryllium bronze, gold plated	Beryllium bronze, gold plated
4	Adapter Type 3.5 mm (M)-Type 3.5 mm (M)	1	Beryllium bronze, gold plated	Stainless steel, passivated
5	Connector body	1		

### Performance Specifications

Component	Frequency	Durability	Parameter
Open (Male)	DC to 9 GHz	> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Short (Male)		> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Load (Male)		> 2000	VSWR: $\leq 1.02$ (Return loss: $\geq 40$ dB)
Adapter Type 3.5 mm (M)-Type 3.5 mm (M)		> 2000	VSWR: $\leq 1.06$ (Return loss: $\geq 30.7$ dB)

# MCAL109-NK1, DC to 9 GHz, Type-N (Male and Female)

## 50 Ω

The MCAL109-NK1 type-N precision coaxial calibration kit uses known components (standards) to calibrate the transmission system within a certain frequency range, thereby characterizing the system errors of the test system to improve measurement accuracy. The frequency range is DC to 9 GHz. The kit mainly includes an open, a short, and a fixed load. It is an indispensable component for accurate calibration of network analyzers, featuring a wide test frequency range, compact size, and stable electrical performance.



### Kit Contents

Serial No.	Component	Quantity
1	Open (Female)	1
2	Open (Male)	1
3	Short (Female)	1
4	Short (Male)	1
5	Load (Female)	1
6	Load (Male)	1
7	Adapter Type N (M)-Type N (M)	1
8	Adapter Type N (F)-Type N (F)	1
9	Adapter Type N (M)-Type N (F)	1
10	Torque wrench (opening size: 19mm; torque: 1.35Nm)	1

11	Tool kit (size:275 * 200 * 80 mm)	1
----	-----------------------------------	---

## Performance Specifications

Component	Frequency	Durability	Parameter
Open	DC to 9 GHz	> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Short		> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Load		> 2000	VSWR: $\leq 1.025$ (Return loss: $\geq 38.2\text{dB}$ )
Adapter		> 2000	VSWR: $\leq 1.06$ (Return loss: $\geq 30.7\text{dB}$ )

## Materials/Surface Treatment

Component	Inner Conductor	External Conductor
Open	Beryllium bronze, gold plated	Stainless steel, passivated
Short	Beryllium bronze, gold plated	Stainless steel, passivated
Load	Beryllium bronze, gold plated	Stainless steel, passivated
Adapter	Beryllium bronze, gold plated	Stainless steel, passivated
Torque wrench	Wrench head: tool steel, nickel plated	Wrench handle: aluminum, anodized
Tool kit	Wooden box	

## MCAL109-SK1, DC to 9 GHz, 3.5 mm (Male and Female)



The MCAL109-SK1 3.5 mm precision coaxial calibration kit uses known components (standards) to calibrate the transmission system within a certain frequency range, thereby characterizing the system errors of the test system to improve measurement accuracy. The frequency range is DC to 9 GHz. The kit mainly includes an open, a short, and a fixed load. It is an indispensable component for accurate calibration of network analyzers, featuring a wide test frequency range, compact size, and stable electrical performance.

### Kit Contents

Serial No.	Component	Quantity
1	Open (Female)	1
2	Open (Male)	1
3	Short (Female)	1
4	Short (Male)	1
5	Load (Female)	1
6	Load (Male)	1
7	Adapter Type 3.5 mm (M)-Type 3.5 mm (M)	1
8	Adapter Type 3.5 mm (F)-Type 3.5 mm (F)	1
9	Adapter Type 3.5 mm (M)-Type 3.5 mm (F)	1
10	Connector body	2

11	Torque wrench (opening size: 8mm; torque: 0.9Nm)	1
12	L-shaped hexagonal wrench	2
13	Tool kit (size: 275 * 200 * 80 mm)	1

## Performance Specifications

Component	Frequency	Durability	Parameter
Open	DC to 9 GHz	> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Short		> 2000	Phase deviation: $\leq \pm 0.8^\circ$
Load		> 2000	VSWR: $\leq 1.02$ (Return loss: $\geq 40$ dB)
Adapter		> 2000	VSWR: $\leq 1.06$ (Return loss: $\geq 30.7$ dB)

## Materials/Surface Treatment

Component	Inner Conductor	External Conductor
Open	Beryllium bronze, gold plated	Beryllium bronze, gold plated
Short	Beryllium bronze, gold plated	Beryllium bronze, gold plated
Load	Beryllium bronze, gold plated	Beryllium bronze, gold plated
Adapter	Beryllium bronze, gold plated	Beryllium bronze, gold plated
Torque wrench	Wrench head: tool steel, nickel plated	Wrench handle: aluminium, anodized
Tool kit	Wooden box	

# MCAL126-35K1, DC to 26.5 GHz, 3.5 mm (Male and Female)

The MCAL126-35K1 3.5 mm precision coaxial calibration kit uses known components (standards) to calibrate the transmission system within a certain frequency range, thereby characterizing the system errors of the test system to improve measurement accuracy. The frequency range is DC to 26.5 GHz. The kit mainly includes an open, a short, and a fixed load. It is an indispensable component for accurate calibration of network analyzers, featuring a wide test frequency range, compact size, and stable electrical performance.



## Kit Contents

Serial No.	Component	Quantity
1	Open (Female)	1
2	Open (Male)	1
3	Short (Female)	1
4	Short (Male)	1
5	Load (Female)	1
6	Load (Male)	1
7	Adapter Type 3.5 mm (M)-Type 3.5 mm (M)	1
8	Adapter Type 3.5 mm (F)-Type 3.5 mm (F)	1
9	Adapter Type 3.5 mm (M)-Type 3.5 mm (F)	1
10	Torque wrench (opening size: 8mm; torque: 0.9Nm)	1
11	Tool kit (size: 275 * 200 * 80 mm)	1

## Performance Specifications

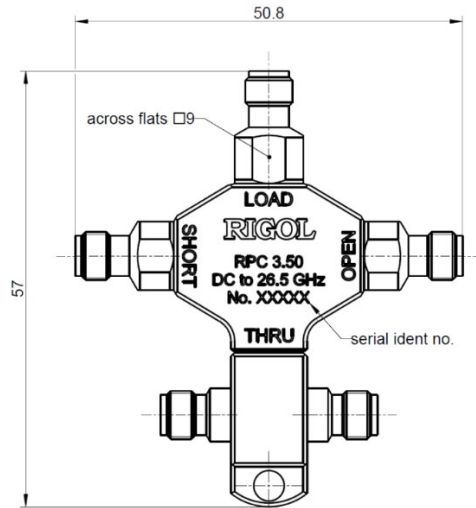
Component	Frequency	Durability	Parameter
Open	DC to 26.5 GHz	> 2000	Phase deviation: $\leq \pm 1.5^\circ$
Short		> 2000	Phase deviation: $\leq \pm 1.5^\circ$
Load		> 2000	VSWR: $\leq 1.04$ (Return loss: $\geq 34\text{dB}$ )
Adapter		> 2000	VSWR: $\leq 1.08$ (Return loss: $\geq 28\text{dB}$ )

## Materials/Surface Treatment

Component	Inner Conductor	External Conductor
Open	Beryllium bronze, gold plated	Beryllium bronze, gold plated
Short	Beryllium bronze, gold plated	Beryllium bronze, gold plated
Load	Beryllium bronze, gold plated	Beryllium bronze, gold plated
Adapter	Beryllium bronze, gold plated	Beryllium bronze, gold plated
Torque wrench	Wrench head: tool steel, nickel plated	Wrench handle: aluminium, anodized
Tool kit	Wooden box	

# MCAL226-35F5, DC to 26.5 GHz, 3.5 mm (Female)

4-in-1 OSLT Mechanical Calibration Kit



Unit: mm

## Kit Contents/Materials/Surface Treatment

Serial No.	Component	Material	Plating
1	Center conductor	CuBe	Gold, min. 1.27 $\mu\text{m}$ , over nickel
2	Outer conductor	Stainless steel	Passivated
3	Body	Aluminum	Black anodized
4	Dielectric	Polystyrene (PS)	—
5	Substrate	$\text{Al}_2\text{O}_3$	—

## Performance Specifications

Serial No.	Parameter	Specification
1	Frequency range	DC to 26.5 GHz
2	(Open) Error from nominal phase <sup>[1]</sup>	DC to 4 GHz: $\leq 1.0^\circ$ 4 GHz to 8 GHz: $\leq 2.0^\circ$ 8 GHz to 26.5 GHz: $\leq 3.0^\circ$
3	(Short) Error from nominal phase <sup>[2]</sup>	
4	(Thru) Return loss	DC to 4 GHz: $\geq 34$ dB 4 GHz to 8 GHz: $\geq 32$ dB 8 GHz to 26.5 GHz: $\geq 30$ dB

5	(Load) Return loss	DC to 4 GHz: $\geq 40.0$ dB 4 GHz to 8 GHz: $\geq 35.0$ dB 8 GHz to 26.5 GHz: $\geq 30.0$ dB
6	DC Resistance	$50 \Omega \pm 0.5 \Omega$
7	Power Handling (at 25°C, sea level)	$\leq 0.5$ W, derate by 0.005 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

### Open

- Offset  $Z_0$  / Impedance /  $Z_0$ :  $50 \Omega$
- Offset Delay: 33.356 ps
- Length (electrical) / Offset Length: 10.00 mm
- Offset Loss:  $2.20$  G $\Omega$ /s
- Loss:  $0.0127$  dB/ $\sqrt{GHz}$
- Fringing Capacitances:

$$C_0 = -17.500 \times 10^{-15} \text{ F} = -17.500 \text{ fF}$$

$$C_1 = -2000.0 \times 10^{-27} \text{ F/Hz} = -2.0000 \text{ fF/GHz}$$

$$C_2 = 140.00 \times 10^{-36} \text{ F/Hz}^2 = 0.1400 \text{ fF/GHz}^2$$

$$C_3 = -2.7000 \times 10^{-45} \text{ F/Hz}^3 = -0.0027$$

$$\text{fF/GHz}^3$$

### Short

- Offset  $Z_0$  / Impedance /  $Z_0$ :  $50 \Omega$
- Offset Delay: 33.356 ps
- Length (electrical) / Offset Length: 10.00 mm
- Offset Loss:  $2.36$  G $\Omega$ /s
- Loss:  $0.0137$  dB/ $\sqrt{GHz}$
- Short Inductance

$$L_0 = -44.000 \times 10^{-12} \text{ H} = -44.000 \text{ pH}$$

$$L_1 = 3700.0 \times 10^{-24} \text{ H/Hz} = 3.7000 \text{ pH/GHz}$$

$$L_2 = -250.00 \times 10^{-33} \text{ H/Hz}^2 = -0.2500 \text{ pH/GHz}^2$$

$$L_3 = 5.0000 \times 10^{-42} \text{ H/Hz}^3 = 0.0050 \text{ pH/GHz}^3$$

### Thru

- Offset  $Z_0$  / Impedance /  $Z_0$ :  $50 \Omega$
- Offset Delay: 84.058 ps
- Length (electrical) / Offset Length: 25.20 mm
- Offset Loss:  $2.51$  G $\Omega$ /s
- Loss:  $0.0183$  dB/ $\sqrt{GHz}$
- Line Loss @ 1GHz: 0.0007 dB/mm

### Load

- Offset  $Z_0$  / Impedance /  $Z_0$ :  $50 \Omega$
- Offset Delay: 0.0000 ps
- Length (electrical) / Offset Length: 0.000 mm
- Offset Loss: 0.00 G $\Omega$ /s
- Loss:  $0.0000$  dB/ $\sqrt{GHz}$

### Mechanical Data

- Mating cycles:  $\geq 500$
- Maximum torque: 1.70 Nm
- Recommended torque: 0.90 Nm
- Gauge: 0.00 mm to 0.08 mm

### Environmental Data

- Operating temperature range<sup>[3]</sup>:  $+20^\circ\text{C}$  to  $+26^\circ\text{C}$
- Rated temperature range of use<sup>[4]</sup>:  $0^\circ\text{C}$  to  $+50^\circ\text{C}$
- Storage temperature range:  $-40^\circ\text{C}$  to  $+85^\circ\text{C}$
- Packing: 1 pce in bag
- Weight: 34.9 g/pce

[3]: Temperature range over which these specifications are valid.

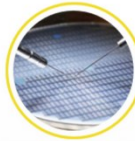
[4]: This range is underneath and above the operating temperature range, within the calibration kit is fully functional and could be used without damage.

# Boost Smart World and Technology Innovation

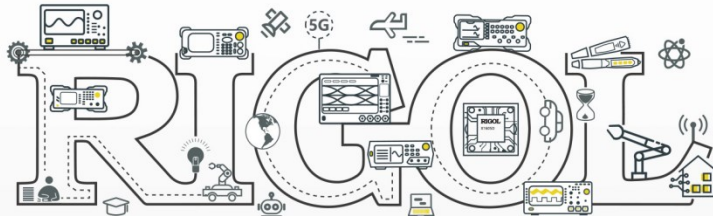
Industrial Intelligent  
Manufacturing



Semiconductors

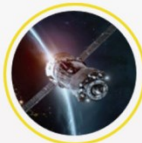


Education &  
Research



Communication

System Integration



New Energy



- 5G Cellular-5G/WIFI
- UWB/RFID/ ZIGBEE
- Digital Bus/Ethernet
- Optical Communication

- Digital/Analog/RF Chip
- Memory and MCU Chip
- Third-Generation Semiconductor
- Solar Photovoltaic Cells

- New Energy Automobile
- PV/Inverter
- Power Test
- Automotive Electronics

*Provide Testing and Measuring Products  
and Solutions for Industry Customers*

## HEADQUARTER

**RIGOL TECHNOLOGIES CO., LTD.**  
No.8 Keling Road, New District,  
Suzhou, JiangSu, P.R.China  
Tel: +86-400620002  
Email: info-cn@rigol.com

## JAPAN

**RIGOL JAPAN CO., LTD.**  
5F, 3-45-6, Minamiotsuka, Toshima-Ku,  
Tokyo, 170-0005, Japan  
Tel: +81-3-6262-8932  
Fax: +81-3-6262-8933  
Email: info.jp@rigol.com

## EUROPE

**RIGOL TECHNOLOGIES EU GmbH**  
Carl-Benz-Str.11  
82205 Gilching  
Germany  
Tel: +49(0)8105-27292-0  
Email: info-europe@rigol.com

## KOREA

**RIGOL KOREA CO., LTD.**  
5F, 222, Gonghang-daero,  
Gangseo-gu, Seoul, Republic of Korea  
Tel: +82-2-6953-4466  
Fax: +82-2-6953-4422  
Email: info.kr@rigol.com

## NORTH AMERICA

**RIGOL TECHNOLOGIES, USA INC.**  
10220 SW Nimbus Ave.  
Suite K-7  
Portland, OR 97223  
Tel: +1-877-4-RIGOL-1  
Email: sales@rigol.com

## For Assistance in Other Countries

Email: info.int@rigol.com

**RIGOL®** is the trademark of **RIGOL TECHNOLOGIES CO., LTD.** Product information in this document is subject to update without notice. For the latest information about **RIGOL's** products, applications and services, please contact local **RIGOL** channel partners or access **RIGOL** official website: [www.rigol.com](http://www.rigol.com)