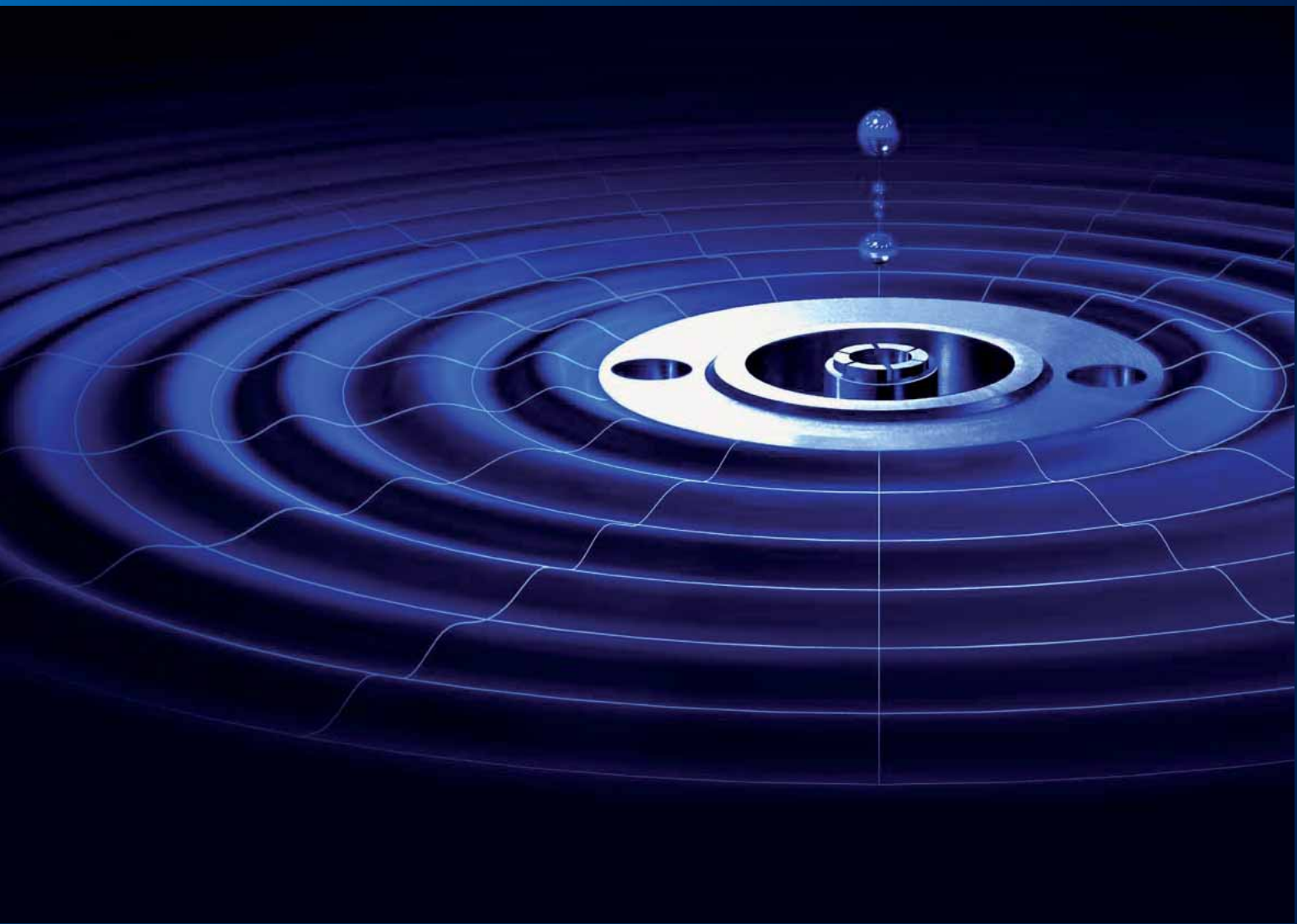


Rosenberger

Test, Measurement & Calibration





Rosenberger offers a wide range of calibration kits for a variety of standard coaxial test interfaces. The following types are available: Full versions including adaptors and sliding loads for variable measurements, industrial kits for standard measurements as well as LRL and TRL calibration kits.

The product range includes also verification kits for RPC-N, RPC-7, RPC-3.50 and RPC-2.92 series, as well as gauge kits for various standard coaxial interfaces.

Für eine Vielzahl von Standard-Koaxial-Interfaces bietet Rosenberger ein umfassendes Spektrum an Kalibrier-Kits. Folgende Versionen werden angeboten: „Full“-Versionen mit Adaptern und Gleitlasten für variable Messaufbauten, „Industrial“-Kits für Standardmessungen sowie LRL- und TRL-Kalibrier-Kits.

Das Produktspektrum wird ergänzt durch Verifizier-Kits für die Serien RPC-N, RPC-7, RPC-3.50 und RPC-2.92 sowie Messuhren-Kits (Gauge Kits) für verschiedene Koaxial-Steckverbinder-Serien.

Test & Measurement Kits



Features

Calibration Kits

Verification Kits

Gauge Kits

Vector Network Analyzer (VNA)

Network analyzers (NAs) are important tools in the development of microwave circuits and systems and gain increasing importance in industrial measurement applications. Vector network analyzers (VNAs) are of particular interest due to their capability of being calibrated.

Vector-error correction is the process of characterizing systematic errors of the measurement system by measuring known calibration standards, and then removing the effects of these errors from subsequent measurements. The quality of the calibration depends on operator experience and random effects such as system sensitivity limits, noise, connection repeatability, etc. The quality of the standards is the crucial factor with regard to the accuracy of the error correction.

For a number of coaxial standard test interfaces Rosenberg offers the following types of calibration kits:

- Full version with adaptors and sliding loads for variable measurements
- Industrial version for standard measurements
- LRL and TRL calibration kits

All Rosenberg Calibration Kits can be used from DC to their maximum frequency.

The following tables show the complete range of available Rosenberg calibration, verification and gauge kits.

Vektorielle Netzwerkanalysatoren (VNA)

Netzwerkanalysatoren (NA) stellen wichtige Hilfsmittel bei der Entwicklung von Mikrowellenschaltungen und -systemen dar, und werden auch zunehmend für industrielle Messungen in der Fertigung und Qualitätssicherung von Bedeutung. Vektorielle Netzwerkanalysatoren (VNA) sind wegen ihrer Kalibrierfähigkeit von besonderem Interesse.

Die vektorielle Fehlerkorrektur ist ein Verfahren, bei dem die Systemfehler der Messeinrichtung durch Kalibriermessungen mit bekannten Kalibrierstandards ermittelt werden. Sie können dann bei nachfolgenden Messungen korrigiert werden. Die Güte des Kalibrierens hängt von der Erfahrung der Bedienperson und stochastischen Einflüssen wie z.B. Drift über Temperatur und Zeit, Rauschen im Generator- und Empfänger und der Reproduzierbarkeit der verwendeten Steckverbindungen ab. Die Qualität der Kalibrierstandards ist entscheidend im Hinblick auf die Genauigkeit der Fehlerkorrektur.

Rosenberger bietet für eine Reihe von Koaxial-Steckverbinder-Serien folgende Kalibrier-Kits:

- Full-Version mit Adaptern und Gleitlasten für sehr variable Messaufbauten
- Industrial-Version für Standard-Messungen
- LRL- und TRL-Kalibrier-Kits

Sämtliche Kalibrier-Kits von Rosenberg sind ab DC einsetzbar.

Folgende Tabellen geben Ihnen einen Überblick über alle verfügbaren Kalibrier-, Verifizier- und Messuhren-Kits.

Coaxial Calibration Kits

| Connector Series Steckverbinder-Serie | Frequency Range Frequenzbereich | Ordering Number Full | Ordering Number Industrial | Ordering Number LRL/TRL |
|--------------------------------------------|--------------------------------------|-------------------------|-------------------------------|----------------------------|
| RPC-N, 50 Ω | DC-18.0 GHz | 05 CK 100-150 | 05 CK 10A-150 | 05 CK 120-150 |
| RPC-N, 75 Ω | DC-4.0 GHz | P5 CK 100-170 | P5 CK 10A-170 | P5 CK 120-170 (TRL) |
| RPC-TNC | DC-18.0 GHz | 06 CK 100-150 | 06 CK 10A-150 | - |
| RPC-7 | DC-18.0 GHz | 07 CK 100-150 | 07 CK 10A-150 | 07 CK 120-150 |
| RPC-SP (BMA) | DC-22.0 GHz | 10 CK 100-150 | - | 10 CK 120-150 (TRL) |
| RPC-3.50 | DC-26.5 GHz | 03 CK 100-150 | 03 CK 10A-150 | 03 CK 120-150 |
| RPC-2.92 | DC-40.0 GHz | 02 CK 100-150 | 02 CK 10A-150 | 02 CK 120-150 |
| RPC-2.40 | DC-50.0 GHz | 09 CK 100-150 | 09 CK 10A-150 | 09 CK 120-150 |
| RPC-1.85 | DC-65.0 GHz | 08 CK 100-150 | 08 CK 10A-150 | 08 CK 120-150 |
| RPC-1.00 | DC-110.0 GHz | - | - | 01 CK 120-150 |
| 7-16 | DC-8.0 GHz | 60 CK 100-150 | 60 CK 10A-150 | 60 CK 120-170 |
| BNC, 50 Ω | DC-4.0 GHz | 51 CK 100-150 | 51 CK 10A-150 | - |
| F | DC-4.0 GHz | 74 CK 100-170 | 74 CK 10A-170 | 74 CK 120-170 (TRL) |
| QMA | DC-18.0 GHz | 28 CK 100-150 | - | - |
| SMP | DC-18.0 GHz | - | 19 CK 10A-150 | - |
| SnapN | DC-11.0 GHz | - | 53 CK 10A-150 | - |
| FAKRA-RF | DC-6.0 GHz | 59 CK 100-150 | - | - |

Verification Kits

| Connector Series Steckverbinder-Serie | Frequency Range Frequenzbereich | Ordering Number |
|--------------------------------------------|--------------------------------------|-----------------|
| RPC-N, 50 Ω | DC-18.0 GHz | 05 CK 200-150 |
| RPC-7 | DC-18.0 GHz | 07 CK 200-150 |
| RPC-3.50 | DC-26.5 GHz | 03 CK 200-150 |
| RPC-2.92 | DC-40.0 GHz | 02 CK 200-150 |

Gauge Kits

| Connector Series Steckverbinder-Serie | Ordering Number |
|--------------------------------------------|-----------------|
| RPC-N, 50 Ω | 05 GK 0KS-000 |
| RPC-N, 75 Ω | P5 GK 0KS-000 |
| RPC-TNC | 06 GK 0KS-000 |
| RPC-7 | 07 GK 0KS-000 |
| RPC-3.50 / RPC-2.92 | 03 GK 0KS-000 |
| RPC-2.40 / RPC-1.85 | 08 GK 0KS-000 |
| RPC-1.00 | 01 GK 0KS-000 |
| RPC-7-16 | 60 GK 0KS-000 |

RPC-N, 50 Ω Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.10 dB ≤ 0.20 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.5° ≤ 3.0° | DC to ≤ 4 > 4 to ≤ 18 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.10 dB ≤ 0.15 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.2° ≤ 2.5° | DC to ≤ 4 > 4 to ≤ 18 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 45 dB ≥ 30 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.25 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 18 |
| Sliding loads ² <i>Gleitlast</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 35 dB | ≥ 2 to ≤ 18 |
| Precision air lines ³ <i>Präzisions-Luftleitungen</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 40 dB ≥ 35 dB | ≥ 0.3 to ≤ 4 > 4 to ≤ 18 |
| | Characteristic Impedance <i>Wellenwiederstand</i> | 50 Ω ± 0.25 Ω | ≥ 0.3 to ≤ 18 |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 36 dB ≥ 30 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ±0.07 mm (±1.5° at 18 GHz) | DC to 18 |

1. The specification for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

2. The specification for the sliding load termination include the quality of the air line portions within the sliding load combined with the effective stability of the sliding element.

3. The characteristic impedance for the air lines is based on mechanical measurements. The return loss specification includes the connector interfaces. The minimum frequency of the air lines is based on calculations of the impedance change due to the skin depth. Refer to the test report included in the kit for the exact dimensions of your precision air lines.

Rosenberger connectors fulfill in principle the indicated data of the Technical Data. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

2. Die Spezifikationen für die Gleitlast-Abschlüsse beziehen sich auf die Güte des Luftleitungs-Abschnitts in Verbindung mit der Reproduzierbarkeit des verschiebbaren Gleitlast-Elements.

3. Der angegebene Wellenwiederstand für Luftleitungen basiert auf mechanischen Messungen, die Rückflussdämpfung schließt das Steckverbinder-Interface mit ein. Die angegebene minimale Frequenz resultiert aus Berechnungen des aufgrund des Skin-Effektes frequenzabhängigen Wellenwiederstandes. Bitte beachten Sie den jedem Kalibrier-Kit beigelegten Testreport.

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit RPC-N, 50 Ω , Full Version

Calibration Kit

Full Version

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 05 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 05 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 05 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 05 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 05 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 05 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 2 |
| 05 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 2 |
| 05 S 150-G300 | Sliding loads (male) <i>Gleitlast (Stecker)</i> | | 1 |
| 05 K 150-G300 | Sliding loads (female) <i>Gleitlast (Kuppler)</i> | | 1 |
| 05 S 121-S20 S3 | Adaptor (RPC-N, 50 Ω male - male) <i>Adapter (RPC-N, 50 Ω Stecker - Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 05 K 121-K20 S3 | Adaptor (RPC-N, 50 Ω female - female) <i>Adapter (RPC-N, 50 Ω Kuppler - Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 53 W 009-000 | Torque wrench <i>Drehmomentschlüssel</i> | 20 mm wrench size / 1.1-Nm-torque <i>20-mm-Schlüssel / 1.1-Nm-Drehmoment</i> | 1 |
| 05 W 00K-000 | Gauge (female) incl. Gauge Block <i>Messuhr (Kuppler) incl. Kalibrierblock</i> | to gauge female connectors <i>für Vermessung von Steckverbindern (Kuppler)</i> | 1 |
| 05 W 00S-000 | Gauge (male) incl. Gauge Block <i>Messuhr (Stecker) incl. Kalibrierblock</i> | to gauge male connectors <i>für Vermessung von Steckverbindern (Stecker)</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-N, 50 Ω , Industrial Version

Calibration Kit

Industrial Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 05 CK 10A-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 05 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 05 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 05 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 05 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 05 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| 05 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| 53 W 009-000 | Torque wrench <i>Drehmomentschlüssel</i> | 20 mm wrench size / 1.1-Nm-torque <i>20-mm-Schlüssel / 1.1-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-N, 50 Ω , LRL Version

Calibration Kit

LRL Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 05 CK 120-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

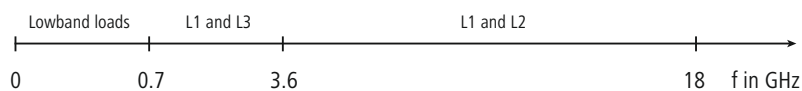
Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 05 S 101-K026 | 26.4 mm Air line (male - female) <i>26.4-mm-Luftleitung (Stecker - Kuppler)</i> | L1 | 1 |
| 05 S 101-K033 | 33.3 mm Air line (male - female) <i>33.3-mm-Luftleitung (Stecker - Kuppler)</i> | L2 | 1 |
| 05 S 101-K061 | 61 mm Air line (male - female) <i>61-mm-Luftleitung (Stecker - Kuppler)</i> | L3 | 1 |
| 05 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 05 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 53 W 009-000 | Torque wrench <i>Drehmomentschlüssel</i> | 20 mm wrench size / 1.1-Nm-torque <i>20-mm-Schlüssel / 1.1-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Frequency Range (2 Bands)



Frequency Range (3 Bands)



LRL calibrations without lowband loads are band limited. There are many different possibilities to calibrate a VNA depending from the line length and the number of lines used during the calibration procedure. If two lines are used the third line can be used as verification standard. The graph besides shows two possibilities using LRL with lowband loads. Without lowband loads the lower band cannot be calibrated.

LRL-Kalibrierungen ohne Niederfrequenz-Lastabschlüsse sind (frequenz-) bandlimitiert. Abhängig von der Länge und der Anzahl der bei der Kalibrierung eingesetzten Leitungen gibt es eine Reihe von Möglichkeiten, vektorielle Netzwerk-Analysatoren zu kalibrieren. Bei Verwendung von zwei Leitungen wird die dritte Leitung als Verifizier-Standard genutzt. Nebenstehende Grafik zeigt zwei mögliche LRL Kalibrierungen mit Niederband-Lastabschlüssen. Ohne diese Abschlüsse kann der untere Frequenzbereich nicht kalibriert werden.

RPC-N, 75 Ω Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.07 dB ≤ 0.10 dB | DC to ≤ 2 > 2 to ≤ 4 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.0° ≤ 1.6° | DC to ≤ 2 > 2 to ≤ 4 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.07 dB ≤ 0.10 dB | DC to ≤ 2 > 2 to ≤ 4 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 0.8° ≤ 1.2° | DC to ≤ 2 > 2 to ≤ 4 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 40 dB ≥ 36 dB | DC to ≤ 2 > 2 to ≤ 4 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 75 Ω ± 0.75 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 4 |
| Precision air lines ³ <i>Präzisions-Luftleitungen</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 42 dB ≥ 40 dB | ≥ 0.1 to ≤ 2 > 2 to ≤ 4 |
| | Characteristic Impedance <i>Wellenwiderstand</i> | 75 Ω ± 0.55 Ω | ≥ 0.1 to ≤ 4 |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 38 dB ≥ 34 dB | DC to ≤ 2 > 2 to ≤ 4 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ±0.07 mm (±0.4° at 4 GHz) | DC to 4 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

2. The characteristic impedance for the air lines is based on mechanical measurements. The return loss specification includes the connector interfaces. The minimum frequency of the air lines is based on calculations of the impedance change due to skin depth. Refer to the test report included in the kit for the exact dimensions of your precision air lines.

Rosenberger connectors fulfill in principle the indicated data of the Technical Data. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

2. Der angegebene Wellenwiderstand für Luftleitungen basiert auf mechanischen Messungen, die Rückflussdämpfung schließt das Steckverbinder-Interface mit ein. Die angegebene minimale Frequenz resultiert aus Berechnungen des aufgrund des "Skin-Effekts" frequenzabhängigen Wellenwiderstandes. Bitte beachten Sie den jedem Kalibrier-Kit beigelegten Testreport.

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit RPC-N, 75 Ω , Full Version

Calibration Kit

Full Version

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P5 CK 100-170 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|--------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| P5 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| P5 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| P5 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| P5 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| P5 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 2 |
| P5 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 2 |
| P5 S 121-S20 S3 | Adaptor (RPC-N, 75 Ω male - male) <i>Adapter (RPC-N, 75 Ω Stecker - Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| P5 K 121-K20 S3 | Adaptor (RPC-N, 75 Ω female - female) <i>Adapter (RPC-N, 75 Ω Kuppler - Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 53 W 009-000 | Torque wrench <i>Drehmomentschlüssel</i> | 20 mm wrench size / 1.1-Nm-torque <i>20-mm-Schlüssel / 1.1-Nm-Drehmoment</i> | 1 |
| 05 W 00K-000 | Gauge (female) incl. Gauge Block <i>Messuhr (Kuppler) incl. Kalibrierblock</i> | to gauge female connectors <i>für Vermessung von Steckverbindern (Kuppler)</i> | 1 |
| P5 W 00S-000 | Gauge (male) incl. Gauge Block <i>Messuhr (Stecker) incl. Kalibrierblock</i> | to gauge male connectors <i>für Vermessung von Steckverbindern (Stecker)</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-N, 75 Ω , Industrial Version

Calibration Kit

Industrial Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| P5 CK 10A-170 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| P5 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| P5 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| P5 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| P5 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| P5 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| P5 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| 53 W 009-000 | Torque wrench <i>Drehmomentschlüssel</i> | 20 mm wrench size / 1.1-Nm-torque <i>20-mm-Schlüssel / 1.1-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-N, 75 Ω , TRL Version

Calibration Kit

TRL Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| P5 CK 120-170 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

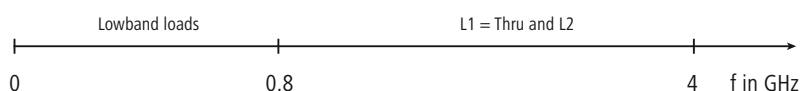
Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

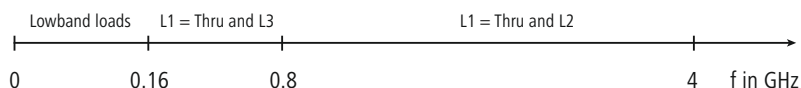
Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| P5 S 101-K031 | 31.2 mm Air line (male - female) <i>31.2-mm-Luftleitung (Stecker - Kuppler)</i> | L2 | 1 |
| P5 S 101-K150 | 150 mm Air line (male - female) <i>150-mm-Luftleitung (Stecker - Kuppler)</i> | L3 | 1 |
| P5 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| P5 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 53 W 009-000 | Torque wrench <i>Drehmomentschlüssel</i> | 20 mm wrench size / 1.1-Nm-torque <i>20-mm-Schlüssel / 1.1-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Frequency Range (2 Bands)



Frequency Range (3 Bands)



TRL/LRL calibrations without lowband loads are band limited. There are many different possibilities to calibrate a VNA depending from the line length and the number of lines used during the calibration procedure. If two lines are used the third line can be used as verification standard. The graph besides shows two possibilities using TRL with lowband loads. Without lowband loads the lower band cannot be calibrated. In this calibration kit line 1 (L1) is the zero length thru connection.

TRL/LRL-Kalibrierungen ohne Niederfrequenz-Lastabschlüsse sind (frequenz-) bandlimitiert. Abhängig von der Länge und der Anzahl der bei der Kalibrierung eingesetzten Leitungen gibt es eine Reihe von Möglichkeiten, vektorielle Netzwerk-Analysatoren zu kalibrieren. Bei Verwendung von zwei Leitungen wird die dritte Leitung als Verifizier-Standard genutzt. Nebenstehende Grafik zeigt zwei mögliche TRL-Kalibrierungen mit Niederband-Lastabschlüssen. Ohne diese Abschlüsse kann der untere Frequenzbereich nicht kalibriert werden. In diesem Kalibrier-Kit ist die Leitung 1 (L1) eine Thru-Leitung mit Länge Null.

RPC-TNC Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.50 dB ≤ 1.00 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 3.5° ≤ 8.0° | DC to ≤ 4 > 4 to ≤ 18 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.50 dB ≤ 1.00 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.0° ≤ 7.0° | DC to ≤ 4 > 4 to ≤ 18 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 35 dB ≥ 25 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.50 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 18 |
| Adaptors <i>Adapter</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 30 dB ≥ 20 dB | DC to ≤ 4 > 4 to ≤ 18 |
| Adaptors <i>Adapter</i> (RPC-N/RPC-TNC) | Return Loss <i>Rückflussdämpfung</i> | ≥ 30 dB ≥ 20 dB | DC to ≤ 4 > 4 to ≤ 18 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

Rosenberger connectors fulfill in principle the indicated data of the Technical Data. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit RPC-TNC, Full Version

Calibration Kit RPC-TNC

Full Version

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 06 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 06 S 150-C10 S3 | Termination (male) <i>Abschlusswiderstand (Stecker)</i> | | 2 |
| 06 K 150-C10 S3 | Termination (female) <i>Abschlusswiderstand (Kuppler)</i> | | 2 |
| 06 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 06 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 06 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 06 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 06 S 121-S20 S3 | Adaptor (RPC-TNC male - male) <i>Adapter (RPC-TNC Stecker - Stecker)</i> | | 1 |
| 06 K 121-K20 S3 | Adaptor (RPC-TNC female - female) <i>Adapter (RPC-TNC Kuppler - Kuppler)</i> | | 1 |
| 05 S 106-S20 S3 | Adaptor (RPC-N, 50 Ω male - RPC-TNC male) <i>Adapter (RPC-N, 50 Ω Stecker - RPC-TNC Stecker)</i> | | 1 |
| 05 K 106-K20 S3 | Adaptor (RPC-N, 50 Ω female - RPC-TNC female) <i>Adapter (RPC-N, 50 Ω Kuppler - RPC-TNC Kuppler)</i> | | 1 |
| 06 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 15 mm wrench size / 55 Ncm torque <i>15-mm-Schlüssel / 55 Ncm Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-TNC, Industrial Version

Calibration Kit RPC-TNC

Industrial Version

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 06 CK 10A-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 06 S 150-C10 S3 | Termination (male) <i>Abschlusswiderstand (Stecker)</i> | | 1 |
| 06 K 150-C10 S3 | Termination (female) <i>Abschlusswiderstand (Kuppler)</i> | | 1 |
| 06 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 06 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 06 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 06 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 06 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 15 mm wrench size / 55 Ncm torque <i>15-mm-Schlüssel / 55 Ncm Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

RPC-7 Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|--------------------------------------------------------------------|---------------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflusdämpfung</i> | ≤ 0.10 dB ≤ 0.15 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.2° ≤ 2.5° | DC to ≤ 4 > 4 to ≤ 18 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflusdämpfung</i> | ≤ 0.07 dB ≤ 0.12 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 0.7° ≤ 1.5° | DC to ≤ 4 > 4 to ≤ 18 |
| | Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflusdämpfung</i> | ≥ 45 dB ≥ 32 dB |
| Sliding loads ² <i>Gleitlast</i> | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.50 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 18 |
| | Return Loss <i>Rückflusdämpfung</i> | ≥ 40 dB | ≥ 2 to ≤ 18 |
| Precision air lines ³ <i>Präzisions-Luftleitungen</i> | Return Loss <i>Rückflusdämpfung</i> | ≥ 45 dB ≥ 40 dB | ≥ 0.3 to ≤ 4 > 4 to ≤ 18 |
| | Characteristic Impedance <i>Wellenwiederstand</i> | 50 Ω ± 0.15 Ω | ≥ 0.3 to ≤ 18 |

1. The specification for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

2. The specification for the sliding load termination include the quality of the air line portions within the sliding load combined with the effective stability of the sliding element.

3. The characteristic impedance for the air lines is based on mechanical measurements. The return loss specification includes the connector interfaces. The minimum frequency of the air lines is based on calculations of the impedance change due to the skin depth. Refer to the test report included in the kit for the exact dimensions of your precision air lines.

Rosenberger connectors fulfill in principle the indicated data of the Technical Data. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

2. Die Spezifikationen für die Gleitlast-Abschlüsse beziehen sich auf die Güte des Luftleitungs-Abschnitts in Verbindung mit der Reproduzierbarkeit des verschiebbaren Gleitlast-Elements.

3. Der angegebene Wellenwiderstand für Luftleitungen basiert auf mechanischen Messungen, die Rückflusdämpfung schließt das Steckverbinder-Interface mit ein. Die angegebene minimale Frequenz resultiert aus Berechnungen des aufgrund des Skin-Effektes frequenzabhängigen Wellenwiderstandes. Bitte beachten Sie den jedem Kalibrier-Kit beigelegten Testreport.

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit RPC-7, Full Version

Calibration Kit

Full Version

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|--------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 07 P 12L-000 S3 | Open circuit <i>Leerlauf</i> | | 1 |
| 07 P 12S-000 S3 | Open circuit <i>Short circuit</i> Leerlauf <i>Kurzschluss</i> | | 1 |
| 07 P 150-C10 S3 | Broadband load <i>Breitband-Last</i> | | 2 |
| 07 P 150-G300 | Sliding load <i>Gleitlast</i> | | 1 |
| 07 W 031-000 | Collet extractor <i>Demontage-Werkzeug</i> | to remove center conductor collets <i>zum Entfernen des Innenleiter-Kontaktes</i> | 1 |
| 07 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 19 mm wrench size / 1.36 Nm torque <i>19-mm-Schlüssel / 1.36-Nm-Drehmoment</i> | 1 |
| 07 W 001-000 | Gauge incl. Gauge Block <i>Messuhr inkl. Kalibrierblock</i> | to gauge connectors <i>für Vermessung von Steckverbindern</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-7, Industrial Version

Calibration Kit

Industrial Version

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07 CK 10A-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 07 P 12L-000 S3 | Open circuit <i>Leerlauf</i> | | 1 |
| 07 P 12S-000 S3 | Short circuit <i>Kurzschluss</i> | | 1 |
| 07 P 150-C10 S3 | Broadband load <i>Breitband-Last</i> | | 1 |
| 07 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 19 mm wrench size / 1.36 Nm torque <i>19-mm-Schlüssel / 1.36-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-7, LRL Version

Calibration Kit

LRL Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 07 CK 120-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

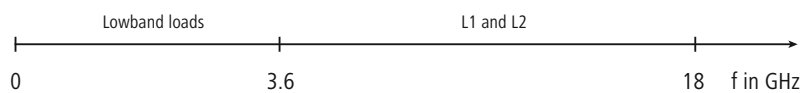
Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

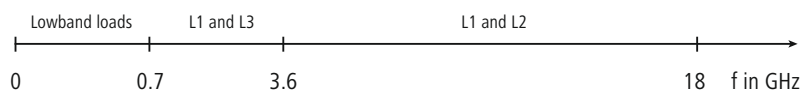
Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|----------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 07 P 101-P034 | 34 mm Air line <i>34-mm-Luftleitung</i> | L1 | 1 |
| 07 P 101-P041 | 41 mm Air line <i>41-mm-Luftleitung</i> | L2 | 1 |
| 07 P 101-P068 | 68 mm Air line <i>68-mm-Luftleitung</i> | L3 | 1 |
| 07 P 12S-000 S3 | Short circuit <i>Kurzschluss</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 07 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 19 mm wrench size / 1.36 Nm torque <i>19-mm-Schlüssel / 1.36-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Frequency Range (2 Bands)



Frequency Range (3 Bands)



LRL calibrations without lowband loads are band limited. There are many different possibilities to calibrate a VNA depending from the line length and the number of lines used during the calibration procedure. If two lines are used the third line can be used as verification standard. The graph besides shows two possibilities using LRL with lowband loads. Without lowband loads the lower band cannot be calibrated.

LRL-Kalibrierungen ohne Niederfrequenz-Lastabschlüsse sind (frequenz-)bandlimitiert. Abhängig von der Länge und der Anzahl der bei der Kalibrierung eingesetzten Leitungen gibt es eine Reihe von Möglichkeiten, vektorielle Netzwerk-Analysatoren zu kalibrieren. Bei Verwendung von zwei Leitungen wird die dritte Leitung als Verifizier-Standard genutzt. Nebenstehende Grafik zeigt zwei mögliche LRL Kalibrierungen mit Niederband-Lastabschlüssen. Ohne diese Abschlüsse kann der untere Frequenzbereich nicht kalibriert werden.

RPC-SP, Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.15 dB ≤ 0.20 dB | DC to ≤ 4 > 4 to ≤ 22 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 2.5° ≤ 5.0° | DC to ≤ 4 > 4 to ≤ 22 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.10 dB ≤ 0.15 dB | DC to ≤ 4 > 4 to ≤ 22 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 2.0° ≤ 4.5° | DC to ≤ 4 > 4 to ≤ 22 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 34 dB ≥ 26 dB ≥ 23 dB | DC to ≤ 4 >4 to ≤ 18 >18 to ≤ 22 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.50 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 22 |
| Precision air lines ² <i>Präzisions-Luftleitungen</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 36 dB ≥ 32 dB | ≥ 0.2 to ≤ 4 > 4 to ≤ 22 |
| | Characteristic Impedance <i>Wellenwiederstand</i> | 50 Ω ± 0.70 Ω | ≥ 0.2 to ≤ 22 |
| Adaptors <i>Adapter</i> (RPC-3.50/RPC-SP) | Return Loss <i>Rückflussdämpfung</i> | ≥ 34 dB ≥ 26 dB | DC to ≤ 4 > 4 to ≤ 22 |
| Adaptors <i>Adapter</i> (RPC-7/RPC-SP) | Return Loss <i>Rückflussdämpfung</i> | ≥ 34 dB ≥ 26 dB | DC to ≤ 4 > 4 to ≤ 18 |
| Adaptors <i>Adapter</i> (RPC-3.50/RPC-7) | Return Loss <i>Rückflussdämpfung</i> | ≥ 36 dB ≥ 28 dB | DC to ≤ 4 > 4 to ≤ 18 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

2. The characteristic impedance for the air lines is based on mechanical measurements. The return loss specification includes the connector interfaces. The minimum frequency of the air lines is based on calculations of the impedance change due to skin depth. Refer to the test report included in the kit for the exact dimensions of your precision air lines.

Rosenberger connectors fulfill in principle the indicated data of the Technical Data. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

2. Der angegebene Wellenwiderstand für Luftleitungen basiert auf mechanischen Messungen, die Rückflussdämpfung schließt das Steckverbinder-Interface mit ein. Die angegebene minimale Frequenz resultiert aus Berechnungen des aufgrund des "Skin-Effekts" frequenzabhängigen Wellenwiderstandes. Bitte beachten Sie den jedem Kalibrier-Kit beigelegten Testreport.

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit RPC-SP, Full Version

Calibration Kit RPC-SP

Full Version

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 10 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 10 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 10 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 10 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 10 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| 10 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| 07 P 110-S20 S3 | Adaptor (RPC-7 - RPC-SP male) <i>Adapter (RPC-7 - RPC-SP Stecker)</i> | | 1 |
| 07 P 110-K20 S3 | Adaptor (RPC-7 - RPC-SP female) <i>Adapter (RPC-7 - RPC-SP Kuppler)</i> | | 1 |
| 03 K 110-S21 S3 | Adaptor (RPC-3.50 female - RPC-SP male) <i>Adapter (RPC-3.50 Kuppler - RPC-SP Stecker)</i> | | 1 |
| 03 K 110-K21 S3 | Adaptor (RPC-3.50 female - RPC-SP female) <i>Adapter (RPC-3.50 Kuppler - RPC-SP Kuppler)</i> | | 1 |
| 03 S 110-S21 S3 | Adaptor (RPC-3.50 male - RPC-SP male) <i>Adapter (RPC-3.50 Stecker - RPC-SP Stecker)</i> | | 1 |
| 03 S 110-K21 S3 | Adaptor (RPC-3.50 male - RPC-SP female) <i>Adapter (RPC-3.50 Stecker - RPC-SP Kuppler)</i> | | 1 |
| 03 S 107-P20 S3 | Adaptor (RPC-3.50 male - RPC-7) <i>Adapter (RPC-3.50 Stecker - RPC-7)</i> | | 1 |
| 03 K 107-P20 S3 | Adaptor (RPC-3.50 female - RPC-7) <i>Adapter (RPC-3.50 Kuppler - RPC-7)</i> | | 1 |
| 07 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 19 mm wrench size / 1.36 Nm torque <i>19-mm-Schlüssel / 1.36 Nm Drehmoment</i> | 1 |
| 10 Z 001-S00 S | Coupling Nut with male thread <i>Überwurfmutter mit Steckergewinde</i> | 11/16-24 UNEF-2A thread <i>11/16-24 UNEF-2A Gewinde</i> | 2 |
| 10 Z 001-K00 S | Coupling Nut with female thread <i>Überwurfmutter mit Kupplergewinde</i> | 11/16-24 UNEF-2B thread <i>11/16-24 UNEF-2B Gewinde</i> | 2 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-SP, TRL Version

Calibration Kit RPC-SP

TRL Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 10 CK 120-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

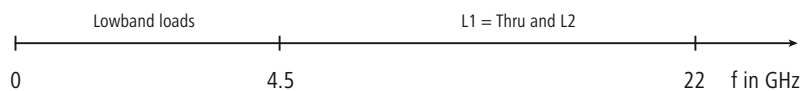
Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

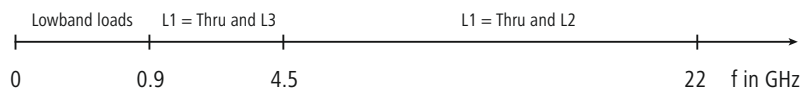
Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 10 S 101-K005 | 5.6 mm Air line (male - female) <i>5.6-mm-Luftleitung (Stecker - Kuppler)</i> | L2 | 1 |
| 10 S 101-K027 | 27.7 mm Air line (male - female) <i>27.7-mm-Luftleitung (Stecker - Kuppler)</i> | L3 | 1 |
| 10 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 10 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 10 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | may be used as lowband load <i>auch als Niedrigfrequenz-Lastabschluss einsetzbar</i> | 1 |
| 10 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | may be used as lowband load <i>auch als Niedrigfrequenz-Lastabschluss einsetzbar</i> | 1 |
| 03 K 110-S21 S3 | Adaptor (RPC-3.50 female - RPC-SP male) <i>Adapter (RPC-3.50 Kuppler - RPC-SP Stecker)</i> | | 1 |
| 03 K 110-K21 S3 | Adaptor (RPC-3.50 female - RPC-SP female) <i>Adapter (RPC-3.50 Kuppler - RPC-SP Kuppler)</i> | | 1 |
| 03 S 110-S21 S3 | Adaptor (RPC-3.50 male - RPC-SP male) <i>Adapter (RPC-3.50 Stecker - RPC-SP Stecker)</i> | | 1 |
| 03 S 110-K21 S3 | Adaptor (RPC-3.50 male - RPC-SP female) <i>Adapter (RPC-3.50 Stecker - RPC-SP Kuppler)</i> | | 1 |
| 07 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 19 mm wrench size / 1.36 Nm torque <i>19-mm-Schlüssel / 1.36 Nm Drehmoment</i> | 1 |
| 10 Z 001-S00 S | Coupling Nut with male thread <i>Überwurfmutter mit Steckergewinde</i> | 11/16-24 UNEF-2A thread <i>11/16-24 UNEF-2A Gewinde</i> | 2 |
| 10 Z 001-K00 S | Coupling Nut with female thread <i>Überwurfmutter mit Kupplergewinde</i> | 11/16-24 UNEF-2B thread <i>11/16-24 UNEF-2B Gewinde</i> | 2 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C, R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Frequency Range (2 Bands)



Frequency Range (3 Bands)



TRL/LRL calibrations without lowband loads are band limited. There are many different possibilities to calibrate a VNA depending from the line length and the number of lines used during the calibration procedure. If two lines are used the third line can be used as verification standard. The graph besides shows two possibilities using TRL with lowband loads. Without lowband loads the lower band cannot be calibrated. In this calibration kit line 1 (L1) is the zero length thru connection.

TRL/LRL-Kalibrierungen ohne Niederfrequenz-Lastabschlüsse sind (frequenz-) bandlimitiert. Abhängig von der Länge und der Anzahl der bei der Kalibrierung eingesetzten Leitungen gibt es eine Reihe von Möglichkeiten, vektorielle Netzwerk-Analysatoren zu kalibrieren. Bei Verwendung von zwei Leitungen wird die dritte Leitung als Verifizier-Standard genutzt. Nebestehende Grafik zeigt zwei mögliche TRL-Kalibrierungen mit Niederband-Lastabschlüssen. Ohne diese Abschlüsse kann der untere Frequenzbereich nicht kalibriert werden.

RPC-3.50, Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.10 dB ≤ 0.20 dB | DC to ≤ 4 > 4 to ≤ 26.5 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.0° ≤ 2.0° | DC to ≤ 4 > 4 to ≤ 26.5 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.10 dB ≤ 0.15 dB | DC to ≤ 4 > 4 to ≤ 26.5 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.2° ≤ 2.0° | DC to ≤ 4 > 4 to ≤ 26.5 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 40 dB ≥ 30 dB | DC to ≤ 4 > 4 to ≤ 26.5 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.25 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 26.5 |
| Sliding loads ² <i>Gleitlast</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 26.4 dB ≥ 32 dB | ≥ 2 to ≤ 4 > 4 to ≤ 26.5 |
| Precision air lines ³ <i>Präzisions-Luftleitungen</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 40 dB ≥ 35 dB | ≥ 0.3 to ≤ 4 > 4 to ≤ 26.5 |
| | Characteristic Impedance <i>Wellenwiderstand</i> | 50 Ω ± 0.35 Ω | ≥ 0.3 to ≤ 26.5 |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 34 dB ≥ 30 dB | DC to ≤ 4 > 4 to ≤ 26.5 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ±0.12 mm (±3.8° at 26.5 GHz) | DC to 26.5 |

1. The specification for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

2. The specification for the sliding load termination include the quality of the air line portions within the sliding load combined with the effective stability of the sliding element.

3. The characteristic impedance for the air lines is based on mechanical measurements. The return loss specification includes the connector interfaces. The minimum frequency of the air lines is based on calculations of the impedance change due to the skin depth. Refer to the test report included in the kit for the exact dimensions of your precision air lines.

Rosenberger connectors fulfill in principle the indicated data of the Technical Characteristics. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

2. Die Spezifikationen für die Gleitlast-Abschlüsse beziehen sich auf die Güte des Luftleitungs-Abschnitts in Verbindung mit der Reproduzierbarkeit des verschiebbaren Gleitlast-Elements.


3. Der angegebene Wellenwiderstand für Luftleitungen basiert auf mechanischen Messungen, die Rückflussdämpfung schließt das Steckverbinder-Interface mit ein. Die angegebene minimale Frequenz resultiert aus Berechnungen des aufgrund des Skin-Effektes frequenzabhängigen Wellenwiderstandes. Bitte beachten Sie den jedem Kalibrier-Kit beigelegten Testreport.

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit RPC-3.50, Full Version

Calibration Kit RPC-3.50

Full Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 03 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 03 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 03 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 03 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 03 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 03 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 2 |
| 03 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 2 |
| 03 S 150-G300 | Sliding load (male) <i>Gleitlast (Stecker)</i> | | 1 |
| 03 K 150-G300 | Sliding load (female) <i>Gleitlast (Kuppler)</i> | | 1 |
| 03 S 121-S20 S3 | Adaptor (RPC-3.50 male - male) <i>Adapter (RPC-3.50 Stecker - Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 K 121-K20 S3 | Adaptor (RPC-3.50 female - female) <i>Adapter (RPC-3.50 Kuppler - Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| 03 W 00K-000 | Gauge (female) incl. Gauge Block <i>Messuhr (Kuppler) incl. Kalibrierblock</i> | to gauge female connectors <i>für Vermessung von Steckverbindern (Kuppler)</i> | 1 |
| 03 W 00S-000 | Gauge (male) incl. Gauge Block <i>Messuhr (Stecker) incl. Kalibrierblock</i> | to gauge male connectors <i>für Vermessung von Steckverbindern (Stecker)</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-3.50, Industrial Version

Calibration Kit RPC-3.50

Industrial Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 03 CK 10A-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 03 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 03 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 03 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 03 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 03 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| 03 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-3.50, LRL Version

Calibration Kit RPC-3.50

LRL Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 03 CK 120-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

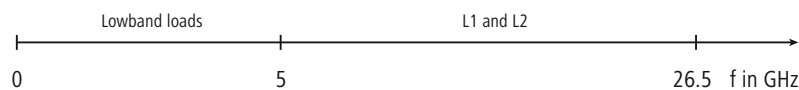
Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

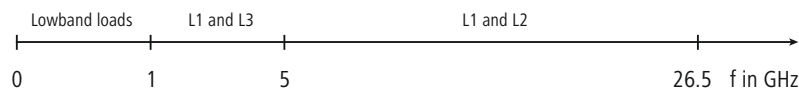
Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 03 S 101-K015 | 15 mm Air line (male - female) <i>15-mm-Luftleitung (Stecker - Kuppler)</i> | L1 | 1 |
| 03 S 101-K020 | 20 mm Air line (male - female) <i>20-mm-Luftleitung (Stecker - Kuppler)</i> | L2 | 1 |
| 03 S 101-K038 | 38.5 mm Air line (male - female) <i>38.5-mm-Luftleitung (Stecker - Kuppler)</i> | L3 | 1 |
| 03 S 12S-001 D3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 03 K 12S-001 D3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Disk verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C, R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Frequency Range (2 Bands)



Frequency Range (3 Bands)



LRL calibrations without lowband loads are band limited. There are many different possibilities to calibrate a VNA depending from the line length and the number of lines used during the calibration procedure. If two lines are used the third line can be used as verification standard. The graph besides shows two possibilities using LRL with lowband loads. Without lowband loads the lower band cannot be calibrated.

LRL-Kalibrierungen ohne Niederfrequenz-Lastabschlüsse sind (frequenz-) bandlimitiert. Abhängig von der Länge und der Anzahl der bei der Kalibrierung eingesetzten Leitungen gibt es eine Reihe von Möglichkeiten, vektorielle Netzwerk-Analysatoren zu kalibrieren. Bei Verwendung von zwei Leitungen wird die dritte Leitung als Verifizier-Standard genutzt. Nebenstehende Grafik zeigt zwei mögliche LRL-Kalibrierungen mit Niederband-Lastabschlüssen. Ohne diese Abschlüsse kann der untere Frequenzbereich nicht kalibriert werden.

RPC-2.92, Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|-----------------------------------------------------------------------|----------------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.10 dB ≤ 0.20 dB | DC to ≤ 4 > 4 to ≤ 40 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.0° ≤ 2.0° | DC to ≤ 4 > 4 to ≤ 40 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.10 dB ≤ 0.20 dB | DC to ≤ 4 > 4 to ≤ 40 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.0° ≤ 2.0° | DC to ≤ 4 > 4 to ≤ 40 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 42 dB ≥ 30 dB | DC to ≤ 4 > 4 to ≤ 40 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.25 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 40 |
| Sliding loads ² <i>Gleitlast</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 28 dB ≥ 32 dB | ≥ 4 to ≤ 8 ≥ 8 to ≤ 40 |
| | Precision air lines ³ <i>Präzisions-Luftleitungen</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 38 dB ≥ 30 dB |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> | Characteristic Impedance <i>Wellenwiderstand</i> | 50 Ω ± 0.40 Ω | ≥ 0.3 to ≤ 40 |
| | Return Loss <i>Rückflussdämpfung</i> | ≥ 32 dB ≥ 25 dB | DC to ≤ 4 > 4 to ≤ 40 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ±0.12 mm (±5.8° at 40 GHz) | DC to 40 |

1. The specification for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

2. The specification for the sliding load termination include the quality of the air line portions within the sliding load combined with the effective stability of the sliding element.

3. The characteristic impedance for the air lines is based on mechanical measurements. The return loss specification includes the connector interfaces. The minimum frequency of the air lines is based on calculations of the impedance change due to the skin depth. Refer to the test report included in the kit for the exact dimensions of your precision air lines.

Rosenberger connectors fulfill in principle the indicated data of the Technical Characteristics. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

2. Die Spezifikationen für die Gleitlast-Abschlüsse beziehen sich auf die Güte des Luftleitungs-Abschnitts in Verbindung mit der Reproduzierbarkeit des verschiebbaren Gleitlast-Elements.


3. Der angegebene Wellenwiderstand für Luftleitungen basiert auf mechanischen Messungen, die Rückflussdämpfung schließt das Steckverbinder-Interface mit ein. Die angegebene minimale Frequenz resultiert aus Berechnungen des aufgrund des Skin-Effektes frequenzabhängigen Wellenwiderstandes. Bitte beachten Sie den jedem Kalibrier-Kit beigelegten Testreport.

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit RPC-2.92, Full Version

Calibration Kit RPC-2.92

Full Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 02 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 02 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 02 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 02 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 02 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 02 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 2 |
| 02 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 2 |
| 02 S 150-G300 | Sliding loads (male) <i>Gleitlast (Stecker)</i> | | 1 |
| 02 K 150-G300 | Sliding loads (female) <i>Gleitlast (Kuppler)</i> | | 1 |
| 02 S 121-S20 S3 | Adaptor (RPC-2.92 male - male) <i>Adapter (RPC-2.92 Stecker - Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 02 K 121-K20 S3 | Adaptor (RPC-2.92 female - female) <i>Adapter (RPC-2.92 Kuppler - Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| 03 W 00K-000 | Gauge (female) incl. Gauge Block <i>Messuhr (Kuppler) incl. Kalibrierblock</i> | to gauge female connectors <i>für Vermessung von Steckverbindern (Kuppler)</i> | 1 |
| 03 W 00S-000 | Gauge (male) incl. Gauge Block <i>Messuhr (Stecker) incl. Kalibrierblock</i> | to gauge male connectors <i>für Vermessung von Steckverbindern (Stecker)</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-2.92, Industrial Version

Calibration Kit RPC-2.92

Industrial Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 02 CK 10A-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 02 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 02 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 02 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 02 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 02 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| 02 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-2.92, LRL Version

Calibration Kit RPC-2.92

LRL Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 02 CK 120-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

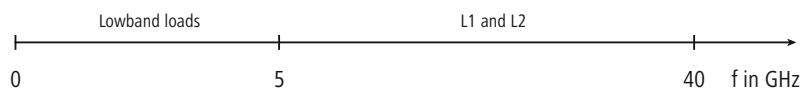
Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

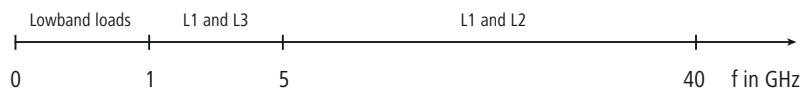
Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 02 S 101-K015 | 15 mm Air line (male - female) <i>15-mm-Luftleitung (Stecker - Kuppler)</i> | L1 | 1 |
| 02 S 101-K018 | 18.3 mm Air line (male - female) <i>18.3-mm-Luftleitung (Stecker - Kuppler)</i> | L2 | 1 |
| 02 S 101-K040 | 40 mm Air line (male - female) <i>40-mm-Luftleitung (Stecker - Kuppler)</i> | L3 | 1 |
| 02 S 12S-001 D3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 02 K 12S-001 D3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C, R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Frequency Range (2 Bands)



Frequency Range (3 Bands)



LRL calibrations without lowband loads are band limited. There are many different possibilities to calibrate a VNA depending from the line length and the number of lines used during the calibration procedure. If two lines are used the third line can be used as verification standard. The graph besides shows two possibilities using LRL with lowband loads. Without lowband loads the lower band cannot be calibrated.

LRL-Kalibrierungen ohne Niederfrequenz-Lastabschlüsse sind (frequenz-) bandlimitiert. Abhängig von der Länge und der Anzahl der bei der Kalibrierung eingesetzten Leitungen gibt es eine Reihe von Möglichkeiten, vektorielle Netzwerk-Analysatoren zu kalibrieren. Bei Verwendung von zwei Leitungen wird die dritte Leitung als Verifizier-Standard genutzt. Nebenstehende Grafik zeigt zwei mögliche LRL-Kalibrierungen mit Niederband-Lastabschlüssen. Ohne diese Abschlüsse kann der untere Frequenzbereich nicht kalibriert werden.

RPC-2.40, Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.15 dB ≤ 0.30 dB | DC to ≤ 4 > 4 to ≤ 50 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 2.0° ≤ 6.0° | DC to ≤ 4 > 4 to ≤ 50 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.15 dB ≤ 0.25 dB | DC to ≤ 4 > 4 to ≤ 50 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.5° ≤ 4.5° | DC to ≤ 4 > 4 to ≤ 50 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 36 dB ≥ 30 dB ≥ 26 dB ≥ 22 dB | DC to ≤ 4 >4 to ≤ 20 >20 to ≤ 26.5 >26.5 to ≤ 50 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.25 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 50 |
| Precision air lines ² <i>Präzisions-Luftleitungen</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 36 dB ≥ 26 dB | ≥ 0.4 to ≤ 4 > 4 to ≤ 50 |
| | Characteristic Impedance <i>Wellenwiderstand</i> | 50 Ω ± 0.95 Ω | ≥ 0.4 to ≤ 50 |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 30 dB ≥ 17 dB | DC to ≤ 4 > 4 to ≤ 50 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ±0.15 mm (±9° at 50 GHz) | DC to 50 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

2. The characteristic impedance for the air lines is based on mechanical measurements. The return loss specification includes the connector interfaces. The minimum frequency of the air lines is based on calculations of the impedance change due to skin depth. Refer to the test report included in the kit for the exact dimensions of your precision air lines.

Rosenberger connectors fulfill in principle the indicated data of the Technical Characteristics. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).


2. Der angegebene Wellenwiderstand für Luftleitungen basiert auf mechanischen Messungen, die Rückflussdämpfung schließt das Steckverbinder-Interface mit ein. Die angegebene minimale Frequenz resultiert aus Berechnungen des aufgrund des "Skin-Effekts" frequenzabhängigen Wellenwiderstandes. Bitte beachten Sie den jedem Kalibrier-Kit beigelegten Testreport.

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit RPC-2.40, Full Version

Calibration Kit RPC-2.40

Full Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 09 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 09 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 09 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 09 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 09 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 09 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 2 |
| 09 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 2 |
| 09 S 121-S20 S3 | Adaptor (RPC-2.40 male - male) <i>Adapter (RPC-2.40 Stecker - Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 09 K 121-K20 S3 | Adaptor (RPC-2.40 female - female) <i>Adapter (RPC-2.40 Kuppler - Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| 08 W 00K-000 | Gauge (female) incl. Gauge Block <i>Messuhr (Kuppler) incl. Kalibrierblock</i> | to gauge female connectors <i>für Vermessung von Steckverbindern (Kuppler)</i> | 1 |
| 08 W 00S-000 | Gauge (male) incl. Gauge Block <i>Messuhr (Stecker) incl. Kalibrierblock</i> | to gauge male connectors <i>für Vermessung von Steckverbindern (Stecker)</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Diskette available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-2.40, Industrial Version

Calibration Kit RPC-2.40

Industrial Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 09 CK 10A-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 09 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 09 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 09 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 09 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 09 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| 09 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-2.40, LRL Version

Calibration Kit RPC-2.40

LRL Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 09 CK 120-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

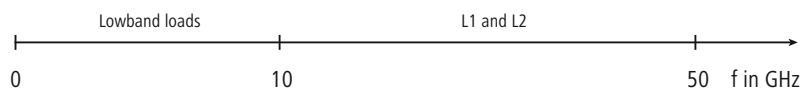
Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

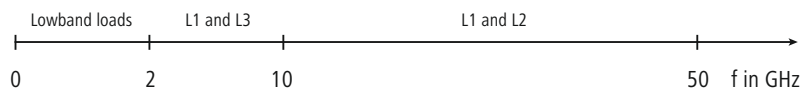
Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 09 S 101-K013 | 13 mm Air line (male - female) <i>13-mm-Luftleitung (Stecker - Kuppler)</i> | L1 | 1 |
| 09 S 101-K015 | 15.5 mm Air line (male - female) <i>15.5-mm-Luftleitung (Stecker - Kuppler)</i> | L2 | 1 |
| 09 S 101-K025 | 25.5 mm Air line (male - female) <i>25.5-mm-Luftleitung (Stecker - Kuppler)</i> | L3 | 1 |
| 09 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 09 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C, R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Frequency Range (2 Bands)



Frequency Range (3 Bands)



LRL calibrations without lowband loads are band limited. There are many different possibilities to calibrate a VNA depending from the line length and the number of lines used during the calibration procedure. If two lines are used the third line can be used as verification standard. The graph besides shows two possibilities using LRL with lowband loads. Without lowband loads the lower band cannot be calibrated.

LRL-Kalibrierungen ohne Niederfrequenz-Lastabschlüsse sind (frequenz-) bandlimitiert. Abhängig von der Länge und der Anzahl der bei der Kalibrierung eingesetzten Leitungen gibt es eine Reihe von Möglichkeiten, vektorielle Netzwerk-Analysatoren zu kalibrieren. Bei Verwendung von zwei Leitungen wird die dritte Leitung als Verifizier-Standard genutzt. Nebenstehende Grafik zeigt zwei mögliche LRL-Kalibrierungen mit Niederband-Lastabschlüssen. Ohne diese Abschlüsse kann der untere Frequenzbereich nicht kalibriert werden.

RPC-1.85, Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------------|-----------------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.15 dB ≤ 0.40 dB | DC to ≤ 4 > 4 to ≤ 65 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 2.5° ≤ 9.0° | DC to ≤ 4 > 4 to ≤ 65 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.15 dB ≤ 0.30 dB | DC to ≤ 4 > 4 to ≤ 65 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 2.0° ≤ 6.0° | DC to ≤ 4 > 4 to ≤ 65 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 34 dB ≥ 25 dB ≥ 22 dB ≥ 20 dB | DC to ≤ 4 >4 to ≤ 26.5 >26.5 to ≤ 50 >50 to ≤ 65 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.25 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 65 |
| Precision air lines ² <i>Präzisions-Luftleitungen</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 34 dB ≥ 24 dB | ≥ 0.5 to ≤ 4 > 4 to ≤ 65 |
| | Characteristic Impedance <i>Wellenwiderstand</i> | 50 Ω ± 1.00 Ω | ≥ 0.5 to ≤ 65 |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 28 dB ≥ 17 dB | DC to ≤ 4 > 4 to ≤ 65 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ±0.15 mm (±11.7° at 65 GHz) | DC to 65 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

2. The characteristic impedance for the air lines is based on mechanical measurements. The return loss specification includes the connector interfaces. The minimum frequency of the air lines is based on calculations of the impedance change due to skin depth. Refer to the test report included in the kit for the exact dimensions of your precision air lines.

Rosenberger connectors fulfill in principle the indicated data of the Technical Characteristics. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).


2. Der angegebene Wellenwiderstand für Luftleitungen basiert auf mechanischen Messungen, die Rückflussdämpfung schließt das Steckverbinder-Interface mit ein. Die angegebene minimale Frequenz resultiert aus Berechnungen des aufgrund des "Skin-Effekts" frequenzabhängigen Wellenwiderstandes. Bitte beachten Sie den jedem Kalibrier-Kit beigelegten Testreport.

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit RPC-1.85, Full Version

Calibration Kit RPC-1.85

Full Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 08 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 08 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 08 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 08 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 08 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 08 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 2 |
| 08 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 2 |
| 08 S 121-S20 S3 | Adaptor (RPC-1.85 male - male) <i>Adapter (RPC-1.85 Stecker - Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 08 K 121-K20 S3 | Adaptor (RPC-1.85 female - female) <i>Adapter (RPC-1.85 Kuppler - Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| 08 W 00K-000 | Gauge (female) incl. Gauge Block <i>Messuhr (Kuppler) incl. Kalibrierblock</i> | to gauge female connectors <i>für Vermessung von Steckverbindern (Kuppler)</i> | 1 |
| 08 W 00S-000 | Gauge (male) incl. Gauge Block <i>Messuhr (Stecker) incl. Kalibrierblock</i> | to gauge male connectors <i>für Vermessung von Steckverbindern (Stecker)</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Diskette available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-1.85, Industrial Version

Calibration Kit RPC-1.85

Industrial Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 08 CK 10A-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 08 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 08 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 08 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 08 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 08 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| 08 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit RPC-1.85, LRL Version

Calibration Kit RPC-1.85

LRL Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 08 CK 120-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

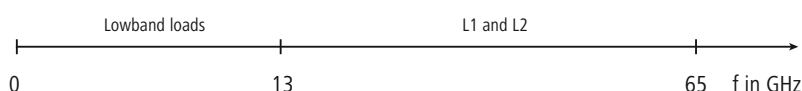
Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

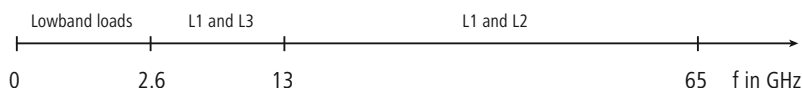
Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 08 S 101-K013 | 13 mm Air line (male - female) <i>13-mm-Luftleitung (Stecker - Kuppler)</i> | L1 | 1 |
| 08 S 101-K014 | 14.9 mm Air line (male - female) <i>14.9-mm-Luftleitung (Stecker - Kuppler)</i> | L2 | 1 |
| 08 S 101-K022 | 22.6 mm Air line (male - female) <i>22.6-mm-Luftleitung (Stecker - Kuppler)</i> | L3 | 1 |
| 08 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 08 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9-Nm-torque <i>8-mm-Schlüssel / 0.9-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C, R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Frequency Range (2 Bands)



Frequency Range (3 Bands)



LRL calibrations without lowband loads are band limited. There are many different possibilities to calibrate a VNA depending from the line length and the number of lines used during the calibration procedure. If two lines are used the third line can be used as verification standard. The graph besides shows two possibilities using LRL with lowband loads. Without lowband loads the lower band cannot be calibrated.

LRL-Kalibrierungen ohne Niedrigfrequenz-Lastabschlüsse sind (frequenz-) bandlimitiert. Abhängig von der Länge und der Anzahl der bei der Kalibrierung eingesetzten Leitungen gibt es eine Reihe von Möglichkeiten, vektorielle Netzwerk-Analysatoren zu kalibrieren. Bei Verwendung von zwei Leitungen wird die dritte Leitung als Verifizier-Standard genutzt. Nebenstehende Grafik zeigt zwei mögliche LRLKalibrierungen mit Niedrigband-Lastabschlüssen. Ohne diese Abschlüsse kann der untere Frequenzbereich nicht kalibriert werden.

RPC-1.00, Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.20 dB ≤ 0.50 dB ≤ 0.75 dB ≤ 1.00 dB | DC to ≤ 20 > 20 to ≤ 50 > 50 to ≤ 75 > 75 to ≤ 110 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | $\leq 4.0^\circ$ $\leq 6.0^\circ$ $\leq 8.0^\circ$ $\leq 11.0^\circ$ | DC to ≤ 20 > 20 to ≤ 50 > 50 to ≤ 75 > 75 to ≤ 110 |
| Lowband loads <i>Niedrigfrequenz-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 36 dB ≥ 30 dB ≥ 28 dB | DC to ≤ 4 > 4 to ≤ 18 > 18 to ≤ 22 |
| | Resistance <i>Gleichstrom-Widerstand</i> | $50 \Omega \pm 0.60 \Omega$ | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 22 |
| Precision air lines ² <i>Präzisions-Luftleitungen</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 24 dB ≥ 20 dB ≥ 18 dB ≥ 14 dB | DC to ≤ 20 > 20 to ≤ 50 > 50 to ≤ 75 > 75 to ≤ 110 |
| | Characteristic Impedance <i>Wellenwiderstand</i> | $50 \Omega \pm 1.15 \Omega$ | ≥ 0.8 to ≤ 110 |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 20 dB ≥ 17 dB ≥ 15 dB ≥ 12 dB | DC to ≤ 20 > 20 to ≤ 50 > 50 to ≤ 75 > 75 to ≤ 110 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ± 0.12 mm ($\pm 15.8^\circ$ at 110 GHz) | DC to 110 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

2. The characteristic impedance for the air lines is based on mechanical measurements. The return loss specification includes the connector interfaces. The minimum frequency of the air lines is based on calculations of the impedance change due to skin depth. Refer to the test report included in the kit for the exact dimensions of your precision air lines.

3. Operating Temperature: $+20^\circ\text{C}$ to 26°C
Storage Temperature: -40°C to $+85^\circ\text{C}$

Rosenberger connectors fulfill in principle the indicated data of the Technical Characteristics. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

2. Der angegebene Wellenwiderstand für Luftleitungen basiert auf mechanischen Messungen, die Rückflussdämpfung schließt das Steckverbinder-Interface mit ein. Die angegebene minimale Frequenz resultiert aus Berechnungen des aufgrund des "Skin-Effekts" frequenzabhängigen Wellenwiderstandes. Bitte beachten Sie den jedem Kalibrier-Kit beigelegten Testreport.


3. Betriebstemperatur: $+20^\circ\text{C}$ bis 26°C
Lagertemperatur: -40°C bis $+85^\circ\text{C}$

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit RPC-1.00, LRL Version

Calibration Kit RPC-1.00

LRL Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 01 CK 120-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

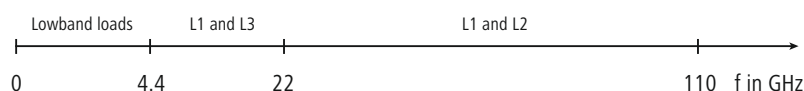
Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 01 S 101-K011 | 11 mm Air line (male - female) <i>11-mm-Luftleitung (Stecker - Kuppler)</i> | L1 with retractable male coupling nut <i>L1 mit Stecker-Überwurfmutter</i> | 1 |
| 01 S 101-K012 | 12.14 mm Air line (male - female) <i>12.14-mm-Luftleitung (Stecker - Kuppler)</i> | L2 with retractable male coupling nut <i>L2 mit Stecker-Überwurfmutter</i> | 1 |
| 01 S 101-K016 | 16.68 mm Air line (male - female) <i>16.68-mm-Luftleitung (Stecker - Kuppler)</i> | L3 with retractable male coupling nut <i>L3 mit Stecker-Überwurfmutter</i> | 1 |
| 01 S 12S-000 D3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 01 K 12S-000 D3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 01 S 150-C10 D3 | Lowband load (male) <i>Niedrigfrequenz-Last (Stecker)</i> | DC to 22 GHz | 1 |
| 01 K 150-C10 D3 | Lowband load (female) <i>Niedrigfrequenz-Last (Kuppler)</i> | DC to 22 GHz | 1 |
| 01 S 101-K01 D3 | Adaptor (RPC-1.00 male - female) <i>Adapter (RPC-1.00 Stecker - Kuppler)</i> | with retractable male coupling nut <i>mit Stecker-Überwurfmutter</i> | 2 |
| 01 S 101-K02 D3 | Adaptor (RPC-1.00 male - female) <i>Adapter (RPC-1.00 Stecker - Kuppler)</i> | with retractable female coupling nut <i>mit Kuppler-Überwurfmutter</i> | 2 |
| 01 S 101-S20 D3 | Adaptor (RPC-1.00 male - male) <i>Adapter (RPC-1.00 Stecker - Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 01 K 101-K20 D3 | Adaptor (RPC-1.00 female - female) <i>Adapter (RPC-1.00 Kuppler - Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 01 S 101-K20 D3 | Adaptor (RPC-1.00 male - female) <i>Adapter (RPC-1.00 Stecker - Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 01 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 6 mm wrench size / 0.35 Nm torque <i>6-mm-Schlüssel / 0.35-Nm-Drehmoment</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C, R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Frequency Range (2 Bands)



Frequency Range (3 Bands)



LRL calibrations without lowband loads are band limited. There are many different possibilities to calibrate a VNA depending from the line length and the number of lines used during the calibration procedure. If two lines are used the third line can be used as verification standard. The graph besides shows two possibilities using LRL with lowband loads. Without lowband loads the lower band cannot be calibrated.

LRL-Kalibrierungen ohne Niedrigfrequenz-Lastabschlüsse sind (frequenz-) bandlimitiert. Abhängig von der Länge und der Anzahl der bei der Kalibrierung eingesetzten Leitungen gibt es eine Reihe von Möglichkeiten, vektorielle Netzwerk-Analysatoren zu kalibrieren. Bei Verwendung von zwei Leitungen wird die dritte Leitung als Verifizier-Standard genutzt. Nebenstehende Grafik zeigt zwei mögliche LRL-Kalibrierungen mit Niedrigband-Lastabschlüssen. Ohne diese Abschlüsse kann der untere Frequenzbereich nicht kalibriert werden.

7-16, Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.10 dB ≤ 0.15 dB | DC to ≤ 4 > 4 to ≤ 8 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.2° ≤ 2.0° | DC to ≤ 4 > 4 to ≤ 8 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.07 dB ≤ 0.12 dB | DC to ≤ 4 > 4 to ≤ 8 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 0.8° ≤ 1.5° | DC to ≤ 4 > 4 to ≤ 8 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 40 dB ≥ 36 dB | DC to ≤ 4 > 4 to ≤ 8 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.50 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 1.0 W (0° to 50° C) | DC to 8 |
| Precision air lines ² <i>Präzisions-Luftleitungen</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 45 dB ≥ 40 dB | ≥ 0.2 to ≤ 4 > 4 to ≤ 8 |
| | Characteristic Impedance <i>Wellenwiderstand</i> | 50 Ω ± 0.10 Ω | ≥ 0.2 to ≤ 8 |
| Adaptors <i>Adapter</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 36 dB ≥ 26 dB | DC to ≤ 4 > 4 to ≤ 8 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

2. The characteristic impedance for the air lines is based on mechanical measurements. The return loss specification includes the connector interfaces. The minimum frequency of the air lines is based on calculations of the impedance change due to skin depth. Refer to the test report included in the kit for the exact dimensions of your precision air lines.

Rosenberger connectors fulfill in principle the indicated data of the Technical Characteristics. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).


2. Der angegebene Wellenwiderstand für Luftleitungen basiert auf mechanischen Messungen, die Rückflussdämpfung schließt das Steckverbinder-Interface mit ein. Die angegebene minimale Frequenz resultiert aus Berechnungen des aufgrund des "Skin-Effekts" frequenzabhängigen Wellenwiderstandes. Bitte beachten Sie den jedem Kalibrier-Kit beigelegten Testreport.

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit 7-16, Full Version

Calibration Kit 7-16

Full Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 60 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 60 S 12L-12S D3 | Open circuit/short circuit (male) <i>Leerlauf/Kurzschluss (Stecker)</i> | one-piece open and short <i>Leerlauf-Kurzschluss-Komponente</i> | 1 |
| 60 K 12L-12S D3 | Open circuit/short circuit (female) <i>Leerlauf/Kurzschluss (Kuppler)</i> | one-piece open and short <i>Leerlauf-Kurzschluss-Komponente</i> | 1 |
| 60 S 17R-C01 D3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| 60 K 17R-C01 D3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| 60 S 101-S50 N1 | Adaptor (7-16 male - male) <i>Adapter (7-16 Stecker - Stecker)</i> | | 1 |
| 60 K 101-K50 N1 | Adaptor (7-16 female - female) <i>Adapter (7-16 Kuppler - Kuppler)</i> | | 1 |
| 05 S 160-S50 D3 | Adaptor (RPC-N, 50 Ω male - 7-16 male) <i>Adapter (RPC-N, 50 Ω Stecker - 7-16 Stecker)</i> | | 1 |
| 05 K 160-K50 D3 | Adaptor (RPC-N, 50 Ω female - 7-16 female) <i>Adapter (RPC-N, 50 Ω Kuppler - 7-16 Kuppler)</i> | | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit 7-16, Industrial Version

Calibration Kit 7-16

Industrial Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 60 CK 10A-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|--------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 60 S 12L-12S D3 | Open circuit/short circuit (male) <i>Leerlauf/Kurzschluss (Stecker)</i> | one-piece open and short <i>Leerlauf-Kurzschluss-Komponente</i> | 1 |
| 60 K 12L-12S D3 | Open circuit/short circuit (female) <i>Leerlauf/Kurzschluss (Kuppler)</i> | one-piece open and short <i>Leerlauf-Kurzschluss-Komponente</i> | 1 |
| 60 S 17R-C01 D3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| 60 K 17R-C01 D3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit 7-16, LRL Version

Calibration Kit 7-16

LRL Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 60 CK 120-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

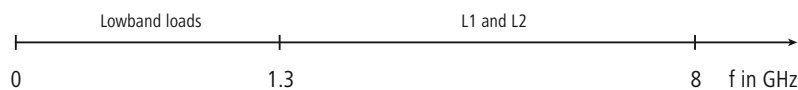
Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

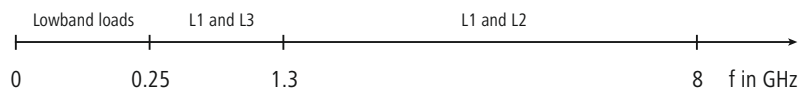
Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 60 S 101-K050 | 50 mm Air line (male - female) <i>50-mm-Luftleitung (Stecker - Kuppler)</i> | L1 | 1 |
| 60 S 101-K066 | 66 mm Air line (male - female) <i>66-mm-Luftleitung (Stecker - Kuppler)</i> | L2 | 1 |
| 60 S 101-K150 | 150 mm Air line (male - female) <i>150-mm-Luftleitung (Stecker - Kuppler)</i> | L3 | 1 |
| 60 S 101-K300 | 300 mm Air line (male - female) <i>300-mm-Luftleitung (Stecker - Kuppler)</i> | L4 verification standard <i>L4 Verifikations-Norm</i> | 1 |
| 60 S 12S-000 D3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 60 K 12S-000 D3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> <i>A1: HP 8510C, R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT</i> | 1 |

Frequency Range (2 Bands)



Frequency Range (3 Bands)



LRL calibrations without lowband loads are band limited. There are many different possibilities to calibrate a VNA depending from the line length and the number of lines used during the calibration procedure. If two lines are used the third line can be used as verification standard. The graph besides shows two possibilities using LRL with lowband loads. Without lowband loads the lower band cannot be calibrated.

LRL-Kalibrierungen ohne Niederfrequenz-Lastabschlüsse sind (frequenz-)bandlimitiert. Abhängig von der Länge und der Anzahl der bei der Kalibrierung eingesetzten Leitungen gibt es eine Reihe von Möglichkeiten, vektorielle Netzwerk-Analysatoren zu kalibrieren. Bei Verwendung von zwei Leitungen wird die dritte Leitung als Verifizier-Standard genutzt. Nebenstehende Grafik zeigt zwei mögliche LRL-Kalibrierungen mit Niederband-Lastabschlüssen. Ohne diese Abschlüsse kann der untere Frequenzbereich nicht kalibriert werden.

BNC, 50 Ω Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|--------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.20 dB ≤ 0.50 dB | DC to ≤ 2 > 2 to ≤ 4 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 3.0° ≤ 5.0° | DC to ≤ 2 > 2 to ≤ 4 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.20 dB ≤ 0.50 dB | DC to ≤ 2 > 2 to ≤ 4 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 2.5° ≤ 4.0° | DC to ≤ 2 > 2 to ≤ 4 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 34 dB ≥ 30 dB | DC to ≤ 2 > 2 to ≤ 4 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.50 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 1.0 W (0° to 50° C) | DC to 4 |
| Adaptors <i>Adapter</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 34 dB ≥ 30 dB | DC to ≤ 2 > 2 to ≤ 4 |
| Adaptors <i>Adapter</i> (N, 50 Ω /BNC, 50 Ω) | Return Loss <i>Rückflussdämpfung</i> | ≥ 36 dB ≥ 30 dB | DC to ≤ 2 > 2 to ≤ 4 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

Rosenberger connectors fulfill in principle the indicated data of the Technical Characteristics. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit BNC, 50 Ω , Full VersionCalibration Kit BNC, 50 Ω

Full Version

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 51 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 51 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 51 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 51 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 51 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 51 S 170-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 2 |
| 51 K 170-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 2 |
| 51 S 121-S20 S3 | Adaptor (BNC 50 Ω male - male) <i>Adapter (BNC 50 Ω Stecker - Stecker)</i> | | 1 |
| 51 K 121-K20 S3 | Adaptor (BNC 50 Ω female - female) <i>Adapter (BNC 50 Ω Kuppler - Kuppler)</i> | | 1 |
| 05 S 151-S20 S3 | Adaptor (RPC-N 50 Ω male - BNC 50 Ω male) <i>Adapter (RPC-N 50 Ω Stecker - BNC 50 Ω Stecker)</i> | | 1 |
| 05 K 151-K20 S3 | Adaptor (RPC-N 50 Ω female-BNC 50 Ω female) <i>Adapter (RPC-N 50 Ω Kuppler-BNC 50 Ω Kuppler)</i> | | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit BNC, 50 Ω , Industrial Version

Calibration Kit BNC, 50 Ω

Industrial Version

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 51 CK 10A-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 51 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 51 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 51 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 51 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 51 S 170-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| 51 K 170-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

F-Connectors, 75 Ω Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|------------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.1 0 dB ≤ 0.20 dB | DC to ≤ 4 > 3 to ≤ 4 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1. 5 ° ≤ 2.0° | DC to ≤ 4 > 3 to ≤ 4 |
| Short circuits ¹ <i>Kurzschluss</i> (male) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.1 0 dB ≤ 0.20 dB | DC to ≤ 4 > 3 to ≤ 4 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.0° ≤ 1.6° | DC to ≤ 4 > 3 to ≤ 4 |
| Broadband loads <i>Breitband-Last</i> (male) | Return Loss <i>Rückflussdämpfung</i> | ≥ 40 dB ≥ 30 dB | DC to ≤ 4 > 3 to ≤ 4 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 75 Ω ± 0.75 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 4 |
| Precision air lines ² <i>Präzisions-Luftleitungen</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 40 dB ≥ 35 dB | ≥ 0.1 to ≤ 3 > 3 to ≤ 4 |
| | Characteristic Impedance <i>Wellenwiderstand</i> | 75 Ω ± 0. 36 Ω | ≥ 0.1 to ≤ 4 |
| Adaptors, phase matched <i>Adapter, phasengepasst</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 32 dB ≥ 28 dB | DC to ≤ 4 > 3 to ≤ 4 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ±0.20 mm (±1.0 at 4 GHz) | DC to ≤ 4 |
| Adaptors <i>Adapter</i> (N, 75 Ω /F) | Return Loss <i>Rückflussdämpfung</i> | ≥ 32 dB ≥ 28 dB | DC to ≤ 3 > 3 to ≤ 4 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

2. The characteristic impedance for the air lines is based on mechanical measurements. The return loss specification includes the connector interfaces. The minimum frequency of the air lines is based on calculations of the impedance change due to skin depth. Refer to the test report included in the kit for the exact dimensions of your precision air lines.

Rosenberger connectors fulfill in principle the indicated data of the Technical Characteristics. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).


2. Der angegebene Wellenwiderstand für Luftleitungen basiert auf mechanischen Messungen, die Rückflussdämpfung schließt das Steckverbinder-Interface mit ein. Die angegebene minimale Frequenz resultiert aus Berechnungen des aufgrund des "Skin-Effekts" frequenzabhängigen Wellenwiderstandes. Bitte beachten Sie den jedem Kalibrier-Kit beigelegten Testreport.

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit for F-Connectors, Full Version

Calibration Kit F-Connectors

Full Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 74 CK 100-170 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit


Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|------------------------------------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 74 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 74 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 74 S 150-C10 CS S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 2 |
| 74 S 121-S20 S3 | Adaptor (F male - male) <i>Adapter (F Stecker - Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 74 K 121-K20 S3 | Adaptor (F female - female) <i>Adapter (F Kuppler - Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| P5 S 174-S20 CS S3 | Adaptor (RPC-N 75 Ω male - F male) <i>Adapter (RPC-N 75 Ω Stecker - F Stecker)</i> | | 1 |
| P5 K 174-K20 CS S3 | Adaptor (RPC-N 75 Ω female - F female) <i>Adapter (RPC-N 75 Ω Kuppler - F Kuppler)</i> | | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit for F-Connectors, Industrial Version

Calibration Kit F-Connectors

Industrial Version


| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 74 CK 10A-170 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 74 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 74 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 74 S 150-C10  | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit for F-Connectors, TRL Version

Calibration Kit F-Connectors

TRL Version

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 74 CK 120-170 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |

Please use the following part numbers for ordering single components.

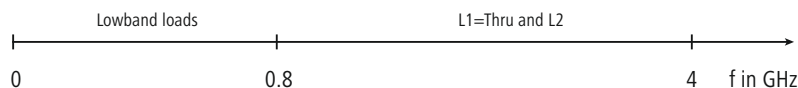
Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

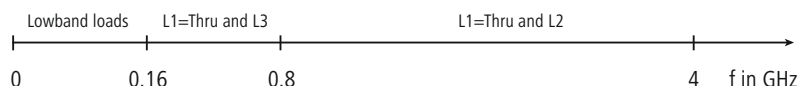
Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 74 S 101-K031 | 31.2 mm Air line (male - female) <i>31.2-mm-Luftleitung (Stecker - Kuppler)</i> | L2 | 1 |
| 74 S 101-K150 | 150 mm Air line (male - female) <i>150-mm-Luftleitung (Stecker - Kuppler)</i> | L3 | 1 |
| 74 S 101-K100 | 100 mm Air line (male - female) <i>100-mm-Luftleitung (Stecker - Kuppler)</i> | L4 verification standard <i>L4 Verifikations-Norm</i> | 1 |
| 74 S 12S-00S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| 74 K 12S-00S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | Reflect standard <i>Reflexions-Norm</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C, R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Frequency Range (2 Bands)



Frequency Range (3 Bands)



TRL/LRL calibrations without lowband loads are band limited. There are many different possibilities to calibrate a VNA depending from the line length and the number of lines used during the calibration procedure. If two lines are used the third line can be used as verification standard. The graph besides shows two possibilities using TRL with lowband loads. Without lowband loads the lower band cannot be calibrated. In this calibration kit line 1 (L1) is the zero length thru connection.

TRL/LRL-Kalibrierungen ohne Niedrigfrequenz-Lastabschlüsse sind (frequenz-) bandlimitiert. Abhängig von der Länge und der Anzahl der bei der Kalibrierung eingesetzten Leitungen gibt es eine Reihe von Möglichkeiten, vektorielle Netzwerk-Analysatoren zu kalibrieren. Bei Verwendung von zwei Leitungen wird die dritte Leitung als Verifizier-Standard genutzt. Nebstehende Grafik zeigt zwei mögliche TRL-Kalibrierungen mit Niedrigband-Lastabschlüssen. Ohne diese Abschlüsse kann der untere Frequenzbereich nicht kalibriert werden. In diesem Kalibrier-Kit ist die Leitung 1 (L1) eine Thru-Leitung mit Länge Null.

QMA Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|--------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.15 dB ≤ 0.25 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 2.5° ≤ 4.5° | DC to ≤ 4 > 4 to ≤ 18 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.15 dB ≤ 0.20 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 2.2° ≤ 4.0° | DC to ≤ 4 > 4 to ≤ 18 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 36 dB ≥ 26 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.50 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 18 |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 32 dB ≥ 24 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ±0.25 mm (±5.4° at 18 GHz) | DC to 18 |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> (RPC-3.50/QMA) | Return Loss <i>Rückflussdämpfung</i> | ≥ 32 dB ≥ 24 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ±0.25 mm (±5.4° at 18 GHz) | DC to 18 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).


Rosenberger connectors fulfill in principle the indicated data of the Technical Characteristics. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit QMA, Full Version

Calibration Kit

Full Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 28 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|---------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 28 S 12L-000 N3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 28 K 12L-000 N3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 28 S 12S-000 N3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 28 K 12S-000 N3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 28 S 150-C10 N3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 2 |
| 28 K 150-C10 N3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 2 |
| 03 S 128-S20 N3 | Adaptor (RPC-3.50 male - QMA male) <i>Adapter (RPC-3.50 Stecker - QMA Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 S 128-K20 N3 | Adaptor (RPC-3.50 male - QMA female) <i>Adapter (RPC-3.50 Stecker - QMA Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 K 128-S20 N3 | Adaptor (RPC-3.50 female - QMA male) <i>Adapter (RPC-3.50 Kuppler - QMA Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 K 128-K20 N3 | Adaptor (RPC-3.50 female - QMA female) <i>Adapter (RPC-3.50 Kuppler - QMA Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 28 S 121-S20 N3 | Adaptor (QMA male-male) <i>Adapter (QMA Stecker-Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 28 S 121-K20 N3 | Adaptor (QMA male-female) <i>Adapter (QMA Stecker-Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 28 K 121-K20 N3 | Adaptor (QMA female-female) <i>Adapter (QMA Kuppler-Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

SMP Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.25 dB ≤ 0.40 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 3.0° ≤ 5.0° | DC to ≤ 4 > 4 to ≤ 18 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.20 dB ≤ 0.30 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 2.5° ≤ 4.0° | DC to ≤ 4 > 4 to ≤ 18 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 26 dB ≥ 23 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.50 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 18 |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 26 dB ≥ 20 dB | DC to ≤ 4 > 4 to ≤ 18 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ±0.20 mm (±4.3° at 18 GHz) | DC to 18 |
| Adaptors RPC-2.92 / SMP <i>Adapter RPC-2.92 / SMP</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 32 dB ≥ 26 dB ≥ 21 dB | DC to ≤ 12 >12 to ≤ 26.5 > 26.5 to ≤ 40 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

Rosenberger connectors fulfill in principle the indicated data of the Technical Characteristics. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.

1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit SMP, Industrial Version

Calibration Kit

Industrial Version

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 19 CK 10A-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 19 S 10L-000 D3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 19 K 10L-000 D3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 19 S 10S-000 D3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 19 K 10S-000 D3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 19 S 150-C10 D3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| 19 K 150-C10 D3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| 19 S 101-S20 D3 | Adaptor (SMP male - male) <i>Adapter (SMP Stecker - Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 19 K 101-K20 D3 | Adaptor (SMP female - female) <i>Adapter (SMP Kuppler - Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 19 S 101-K20 D3 | Adaptor (SMP male - female) <i>Adapter (SMP Stecker - Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 02 S 119-S00 E3 | Adaptor (RPC-2.92 male - SMP male) <i>Adapter (RPC-2.92 Stecker - SMP Stecker)</i> | | 1 |
| 02 K 119-K00 E3 | Adaptor (RPC-2.92 female - SMP female) <i>Adapter (RPC-2.92 Kuppler - SMP Kuppler)</i> | | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Diskette available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

SnapN Calibration Standards

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------|-----------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.10 dB ≤ 0.20 dB | DC to ≤ 4 > 4 to ≤ 11 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.5° ≤ 3.0° | DC to ≤ 4 > 4 to ≤ 11 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.10 dB ≤ 0.15 dB | DC to ≤ 4 > 4 to ≤ 11 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 1.2° ≤ 2.5° | DC to ≤ 4 > 4 to ≤ 11 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 40 dB ≥ 30 dB | DC to ≤ 4 > 4 to ≤ 11 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.50 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 11 |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> (SnapN/RPC-N 50 Ω) | Return Loss <i>Rückflussdämpfung</i> | ≥ 36 dB ≥ 27 dB | DC to ≤ 4 > 4 to ≤ 11 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ± 0.2 mm (± 2.7° at 11 GHz) | DC to 11 |

1. The specifications for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

Rosenberger connectors fulfill in principle the indicated data of the Technical Data. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.


1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit SnapN, Industrial Version

Calibration Kit SnapN

Industrial Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 53Q CK 10A-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|------------------|-------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 53 QS 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | | 1 |
| 53 QK 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | | 1 |
| 53 QS 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | | 1 |
| 53 QK 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | | 1 |
| 53 QS 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | | 1 |
| 53 QK 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | | 1 |
| 53 QS 105-K20 S3 | Adaptor (SnapN male - RPC-N 50Ω female) <i>Adapter (SnapN Stecker - RPC-N 50Ω Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 53 QK 105-S20 S3 | Adaptor (SnapN female - RPC-N 50Ω male) <i>Adapter (SnapN Kuppler - RPC-N 50Ω Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |

Calibration Kit FAKRA-RF

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------|----------------------------------------------------------------------|-------------------------------------|----------------------------------------------------|
| Open circuits ¹ <i>Leerlauf</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.05 dB ≤ 0.10 dB ≤ 0.12 dB | DC to ≤ 1 > 1 to ≤ 3 > 3 to ≤ 6 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 0.5° ≤ 1.5° ≤ 2.2° | DC to ≤ 1 > 1 to ≤ 3 > 3 to ≤ 6 |
| Short circuits ¹ <i>Kurzschluss</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≤ 0.05 dB ≤ 0.10 dB ≤ 0.12 dB | DC to ≤ 1 > 1 to ≤ 3 > 3 to ≤ 6 |
| | Deviation from Nominal Phase <i>Nominale Phasenabweichung</i> | ≤ 0.5° ≤ 1.2° ≤ 1.8° | DC to ≤ 1 > 1 to ≤ 3 > 3 to ≤ 6 |
| Broadband loads <i>Breitband-Last</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 42 dB ≥ 40 dB ≥ 36 dB | DC to ≤ 1 > 1 to ≤ 3 > 3 to ≤ 6 |
| | Resistance <i>Gleichstrom-Widerstand</i> | 50 Ω ± 0.50 Ω | DC |
| | Power Handling <i>Nennleistung</i> | ≤ 0.5 W (0° to 50° C) | DC to 6 |
| Adaptors, phase matched <i>Adapter, phasenangepasst</i> | Return Loss <i>Rückflussdämpfung</i> | ≥ 38 dB ≥ 26 dB ≥ 21 dB | DC to ≤ 1 > 1 to ≤ 3 > 3 to ≤ 6 |
| | Accuracy of Electrical Length <i>Toleranz elektrische Länge</i> | ±0.4 mm (±2.9° at 6 GHz) | DC to 6 |

1. The specification for the opens and shorts are given as allowed deviation from the nominal model as defined in the test report included in the kit.

Rosenberger connectors fulfill in principle the indicated data of the Technical Data. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger sales partner.


1. Die Spezifikationen für Leerlauf und Kurzschluss beziehen sich auf die nominale Phasenabweichung wie im Testreport angegeben (im Kalibrier-Kit enthalten).

Rosenberger-Steckverbinder erfüllen grundsätzlich die in den Technischen Daten angegebenen Daten. Je nach Anwendung, Bauart, Kabeltyp, Montageart und -ausführung können einzelne Werte von Steckverbindern hiervon abweichen. Spezifische Datenblätter zu einzelnen Produkten erhalten Sie auf Anfrage von Ihrem Rosenberger-Ansprechpartner.

Calibration Kit FAKRA-RF, Full Version

Calibration Kit

Full Version

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 59 CK 100-150 | Rosenberger calibration kits are delivered in stable wooden boxes including test reports. <i>Lieferung von Kalibrier-Kits erfolgt in stabiler Holzbox einschließlich Testreport.</i> |  |

Please use the following part numbers for ordering single components.

Bitte folgende Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.

Contents of Calibration Kit

Inhalt des Kalibrier-Kits

| Ordering Number | Components | Remarks | Quantity |
|-----------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 03 S 12L-000 S3 | Open circuit (male) <i>Leerlauf (Stecker)</i> | RPC-3.50 Interface | 1 |
| 03 K 12L-000 S3 | Open circuit (female) <i>Leerlauf (Kuppler)</i> | RPC-3.50 Interface | 1 |
| 03 S 12S-000 S3 | Short circuit (male) <i>Kurzschluss (Stecker)</i> | RPC-3.50 Interface | 1 |
| 03 K 12S-000 S3 | Short circuit (female) <i>Kurzschluss (Kuppler)</i> | RPC-3.50 Interface | 1 |
| 03 S 150-C10 S3 | Broadband load (male) <i>Breitband-Last (Stecker)</i> | RPC-3.50 Interface | 1 |
| 03 K 150-C10 S3 | Broadband load (female) <i>Breitband-Last (Kuppler)</i> | RPC-3.50 Interface | 1 |
| 03 K 159-S20 S3 | Adaptor (RPC-3.50 female - FAKRA RF male) <i>Adapter (RPC-3.50 Kuppler - FAKRA HF Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 K 159-K20 S3 | Adaptor (RPC-3.50 female - FAKRA RF female) <i>Adapter (RPC-3.50 Kuppler - FAKRA HF Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 S 159-S20 S3 | Adaptor (RPC-3.50 male - FAKRA RF male) <i>Adapter (RPC-3.50 Stecker - FAKRA HF Stecker)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 S 159-K20 S3 | Adaptor (RPC-3.50 male - FAKRA RF female) <i>Adapter (RPC-3.50 Stecker - FAKRA HF Kuppler)</i> | phase matched <i>phasenangepasst</i> | 1 |
| 03 W 021-000 | Torque wrench <i>Drehmomentschlüssel</i> | 8 mm wrench size / 0.9 Nm torque <i>8-mm-Schlüssel / 0.9 Nm Drehmoment</i> | 1 |
| 59 Z 014-000 Z | Plastic housing male <i>Kunststoff-Gehäuse Stecker</i> | Spare Housing <i>Ersatzgehäuse</i> | 10 |
| 59 Z 013-000 Z | Plastic housing female <i>Kunststoff-Gehäuse Kuppler</i> | Spare Housing <i>Ersatzgehäuse</i> | 10 |
| - | 3 1/2" disk on request <i>3 1/2"-Diskette auf Anfrage</i> | Disk available for the following network analyzers: <i>Diskette verfügbar für folgende Netzwerk-Analysatoren:</i> A1: HP 8510C A2: HP 8752D/8753D W2: Anritsu 37XXXA/B R1: R&S ZVA/ZVB/ZVK/ZVM/ZVR/ZVT | 1 |


Verification Kit RPC-N, 50 Ω

Each verification device is electrically characterized on a network analyzer measurement system. These measurements are traceable to the Physikalisch-Technische Bundesanstalt Braunschweig (PTB) through mechanical and electrical paths.

Alle Verifizier-Komponenten werden mit einem Netzwerk-Analysator elektrisch geprüft und charakterisiert. Die Messungen sind rückführbar auf Normale der Physikalisch-Technischen Bundesanstalt Braunschweig (PTB).

Verification Kit

RPC-N, 50 Ω

| Ordering Number | Remarks | |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 05 CK 200-150 | Rosenberger verification kits are delivered in stable wooden boxes including test reports and network analyzer measurements. <i>Lieferung von Verifizier-Kits erfolgt in stabiler Holzbox einschließlich Testreport und Messprotokoll.</i> |  |

Contents of Verification Kit

Inhalt des Verifizier-Kits

| Ordering Number | Components | Quantity | Remarks |
|------------------|-----------------------------------------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 05 AS 122-K20 S3 | 20 dB Attenuator <i>Dämpfungsglied</i> | 1 | Please use this part numbers for ordering single components. <i>Bitte diese Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.</i> |
| 05 AS 122-K40 S3 | 40 dB Attenuator <i>Dämpfungsglied</i> | 1 | |
| 05 S 101-K100 | 50 Ω Air line <i>Luftleitung</i> | 1 | |
| 05 S 102-K100 | 25 Ω Mismatch air line <i>Fehlabschluss-Luftleitung</i> | 1 | |

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|----------------------------------------------------------------------------------------|----------------------------------------|-----------------------------------|----------------------------------------------------|
| 20 dB Attenuator <i>20-dB-Dämpfungsglied</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 32 dB | DC to ≤ 4 |
| | Return Loss <i>Rückflussdämpfung</i> | ≥ 26 dB | > 4 to ≤ 18 |
| | Insertion Loss <i>Dämpfung</i> | 20 dB ± 0.30 dB | DC to ≤ 4 |
| | Insertion Loss <i>Dämpfung</i> | 20 dB ± 0.50 dB | > 4 to ≤ 18 |
| 40 dB Attenuator <i>40-dB-Dämpfungsglied</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 32 dB | DC to ≤ 4 |
| | Return Loss <i>Rückflussdämpfung</i> | ≥ 23 dB | > 4 to ≤ 18 |
| | Insertion Loss <i>Dämpfung</i> | 40 dB ± 0.50 dB | DC to ≤ 4 |
| | Insertion Loss <i>Dämpfung</i> | 40 dB ± 1.00 dB | > 4 to ≤ 18 |
| 50 Ω Air line <i>50-Ω-Luftleitung</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 40 dB | 0.3 to ≤ 4 |
| | Return Loss <i>Rückflussdämpfung</i> | ≥ 35 dB | > 4 to ≤ 18 |
| | Insertion Loss <i>Dämpfung</i> | ≤ 0.08 dB | 0.04 to ≤ 4 |
| | Insertion Loss <i>Dämpfung</i> | ≤ 0.15 dB | > 4 to ≤ 18 |
| 25 Ω Mismatch air line <i>25-Ω-Fehlabschluss-Luftleitung</i> (male and female) | 50 Ω Air line | | |
| | Outer Conductor <i>Außenleiter:</i> | | |
| | Diameter <i>Durchmesser</i> | 7.000 mm ± 0.005 mm | |
| | Length <i>Länge</i> | 100.00 mm + 0.02 mm | |
| | Inner Conductor <i>Innenleiter:</i> | | |
| | Diameter <i>Durchmesser</i> | 3.040 mm ± 0.010 mm | |
| | Length <i>Länge</i> | 100.00 mm - 0.02 mm | |
| | 25 Ω Mismatch air line | | |
| | Outer Conductor <i>Außenleiter:</i> | | |
| | Diameter <i>Durchmesser</i> | 7.000 mm ± 0.005 mm | |
| Length <i>Länge</i> | 100.00 mm + 0.02 mm | | |
| Inner Conductor <i>Innenleiter:</i> | | | |
| Diameter <i>Durchmesser</i> | 3.040 mm ± 0.010 mm | | |
| -50 Ω Section <i>Abschnitt</i> | 4.615 mm ± 0.010 mm | | |
| -25 Ω Section <i>Abschnitt</i> | | | |
| Length <i>Länge</i> | | | |
| -Total | 100.00 mm - 0.02 mm | | |
| -25 Ω Section <i>Abschnitt</i> | 75.00 mm ± 0.05 mm | | |

Verification Kit RPC-7

Each verification device is electrically characterized on a network analyzer measurement system. These measurements are traceable to the Physikalisch-Technische Bundesanstalt Braunschweig (PTB) through mechanical and electrical paths.

Alle Verifizier-Komponenten werden mit einem Netzwerk-Analysator elektrisch geprüft und charakterisiert. Die Messungen sind rückführbar auf Normale der Physikalisch-Technischen Bundesanstalt Braunschweig (PTB).

Verification Kit

RPC-7

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07 CK 200-150 | Rosenberger verification kits are delivered in stable wooden boxes including test reports and network analyzer measurements. <i>Lieferung von Verifizier-Kits erfolgt in stabiler Holzbox einschließlich Testreport und Messprotokoll.</i> |

Contents of Verification Kit

Inhalt des Verifizier-Kits

| Ordering Number | Components | Quantity | Remarks |
|------------------|------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07 AP 122-P20 S3 | 20 dB Attenuator <i>Dämpfungsglied</i> | 1 | Please use this part numbers for ordering single components. <i>Bitte diese Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.</i> |
| 07 AP 122-P40 S3 | 40 dB Attenuator <i>Dämpfungsglied</i> | 1 | |
| 07 P 101-P100 | 50 Ω Air line <i>Luftleitung</i> | 1 | |
| 07 P 102-P100 | 25 Ω Mismatch air line <i>Fehlabschluss-Luftleitung</i> | 1 | |

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-----------------------------------------------------------------------------------------------------------------|-------------------------------------------------|-----------------------------------|----------------------------------------------------|
| 20 dB Attenuator <i>20-dB-Dämpfungsglied</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 26 dB | DC to ≤ 4 |
| | Return Loss <i>Rückflussdämpfung</i> | ≥ 23 dB | > 4 to ≤ 18 |
| | Insertion Loss <i>Dämpfung</i> | 20 dB \pm 0.30 dB | DC to ≤ 4 |
| | Insertion Loss <i>Dämpfung</i> | 20 dB \pm 0.80 dB | > 4 to ≤ 18 |
| 40 dB Attenuator <i>40-dB-Dämpfungsglied</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 26 dB | DC to ≤ 4 |
| | Return Loss <i>Rückflussdämpfung</i> | ≥ 20 dB | > 4 to ≤ 18 |
| | Insertion Loss <i>Dämpfung</i> | 40 dB \pm 0.80 dB | DC to ≤ 4 |
| | Insertion Loss <i>Dämpfung</i> | 40 dB \pm 1.50 dB | > 4 to ≤ 18 |
| 50 Ω Air line <i>50-Ω-Luftleitung</i> (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 45 dB | 0.3 to ≤ 4 |
| | Return Loss <i>Rückflussdämpfung</i> | ≥ 40 dB | > 4 to ≤ 18 |
| | Insertion Loss <i>Dämpfung</i> | ≤ 0.08 dB | 0.04 to ≤ 4 |
| | Insertion Loss <i>Dämpfung</i> | ≤ 0.15 dB | > 4 to ≤ 18 |
| 25 Ω Mismatch air line <i>25-Ω-Fehlabschluss-Luftleitung</i> (male and female) | 50 Ω Air line | | |
| | Outer Conductor <i>Außenleiter:</i> | | |
| | Diameter <i>Durchmesser</i> | 7.000 mm \pm 0.005 mm | |
| | Length <i>Länge</i> | 100.00 mm \pm 0.02 mm | |
| | Inner Conductor <i>Innenleiter:</i> | | |
| | Diameter <i>Durchmesser</i> | 3.040 mm \pm 0.005 mm | |
| | Length <i>Länge</i> | 100.00 mm \pm 0.02 mm | |
| | 25 Ω Mismatch air line | | |
| Outer Conductor <i>Außenleiter:</i> | | | |
| Diameter <i>Durchmesser</i> | 7.000 mm \pm 0.005 mm | | |
| Length <i>Länge</i> | 100.00 mm \pm 0.02 mm | | |
| Inner Conductor <i>Innenleiter:</i> | | | |
| Diameter <i>Durchmesser</i> | 3.040 mm \pm 0.005 mm | | |
| -50 Ω Section <i>Abschnitt</i> | 4.615 mm \pm 0.005 mm | | |
| -25 Ω Section <i>Abschnitt</i> | 4.615 mm \pm 0.005 mm | | |
| Length <i>Länge</i> | | | |
| -Total | 100.00 mm \pm 0.02 mm | | |
| -25 Ω Section <i>Abschnitt</i> | 75.00 mm \pm 0.02 mm | | |

Verification Kit RPC-3.50

Each verification device is electrically characterized on a network analyzer measurement system. These measurements are traceable to the Physikalisch-Technische Bundesanstalt Braunschweig (PTB) through mechanical and electrical paths.

Alle Verifizier-Komponenten werden mit einem Netzwerk-Analysator elektrisch geprüft und charakterisiert. Die Messungen sind rückführbar auf Normale der Physikalisch-Technischen Bundesanstalt Braunschweig (PTB).

Verification Kit

RPC-3.50

| Ordering Number | Remarks |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 03 CK 200-150 | Rosenberger verification kits are delivered in stable wooden boxes including test reports and network analyzer measurements. Lieferung von Verifizier-Kits erfolgt in stabiler Holzbox einschließlich Testreport und Messprotokoll. |

Contents of Verification Kit

Inhalt des Verifizier-Kits

| Ordering Number | Components | Quantity | Remarks |
|------------------|----------------------------------------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| 03 AS 122-K20 S3 | 20 dB Attenuator Dämpfungsglied | 1 | Please use this part numbers for ordering single components. Bitte diese Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden. |
| 03 AS 122-K40 S3 | 40 dB Attenuator Dämpfungsglied | 1 | |
| 03 S 101-K100 | 50 Ω Air line Luftleitung | 1 | |
| 03 S 102-K100 | 25 Ω Mismatch air line Fehlabschluss-Luftleitung | 1 | |

Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|----------------------------------------------------------|----------------------------------------------------|--|
| 20 dB Attenuator 20-dB-Dämpfungsglied (male and female) | Return Loss Rückflussdämpfung | ≥ 20 dB 32 | DC to ≤ 4 | |
| | Return Loss Rückflussdämpfung | ≥ 20 dB 20.1 | > 4 to ≤ 26.5 | |
| | Insertion Loss Dämpfung | 20 dB ± 0.30 dB | DC to ≤ 4 | |
| | Insertion Loss Dämpfung | 20 dB ± 0.50 dB | > 4 to ≤ 26.5 | |
| 40 dB Attenuator 40-dB-Dämpfungsglied (male and female) | Return Loss Rückflussdämpfung | ≥ 20 dB 32 | DC to ≤ 4 | |
| | Return Loss Rückflussdämpfung | ≥ 20 dB 20.1 | > 4 to ≤ 26.5 | |
| | Insertion Loss Dämpfung | 40 dB ± 0.40 dB | DC to ≤ 4 | |
| | Insertion Loss Dämpfung | 40 dB ± 1.00 dB | > 4 to ≤ 26.5 | |
| 50 Ω Air line 50-Ω-Luftleitung (male and female) | Return Loss Rückflussdämpfung | ≥ 40 dB | 0.3 to ≤ 4 | |
| | Return Loss Rückflussdämpfung | ≥ 35 dB | > 4 to ≤ 26.5 | |
| | Insertion Loss Dämpfung | ≤ 0.15 dB | 0.04 to ≤ 4 | |
| | Insertion Loss Dämpfung | ≤ 0.30 dB | > 4 to ≤ 26.5 | |
| 50 Ω Air line Outer Conductor Außenleiter: Diameter Durchmesser Length Länge Inner Conductor Innenleiter: Diameter Durchmesser Length Länge | 50 Ω Air line | | | |
| | Outer Conductor Außenleiter: Diameter Durchmesser | 3.500 mm ± 0.005 mm | | |
| | Length Länge | 100.00 mm + 0.02 mm | | |
| | Inner Conductor Innenleiter: Diameter Durchmesser | 1.520 mm ± 0.010 mm | | |
| | Length Länge | 100.00 mm - 0.02 mm | | |
| | 25 Ω Mismatch air line 25-Ω-Fehlabschluss-Luftleitung (male and female) | 25 Ω Mismatch air line | | |
| | | Outer Conductor Außenleiter: Diameter Durchmesser | 3.500 mm ± 0.005 mm | |
| | | Length Länge | 100.00 mm + 0.02 mm | |
| Inner Conductor Innenleiter: Diameter Durchmesser | | 1.520 mm ± 0.010 mm | | |
| -50 Ω Section Abschnitt | | 2.307 mm ± 0.007 mm | | |
| -25 Ω Section Abschnitt | | | | |
| Length Länge | | | | |
| -Total | | 100.00 mm - 0.02 mm | | |
| -25 Ω Section Abschnitt | 75.00 mm ± 0.050 mm | | | |

Verification Kit RPC-2.92

Each verification device is electrically characterized on a network analyzer measurement system. These measurements are traceable to the Physikalisch-Technische Bundesanstalt Braunschweig (PTB) through mechanical and electrical paths.

Alle Verifizier-Komponenten werden mit einem Netzwerk-Analysator elektrisch geprüft und charakterisiert. Die Messungen sind rückführbar auf Normale der Physikalisch-Technischen Bundesanstalt Braunschweig (PTB).

Verification Kit

RPC-2.92

| Ordering Number | Remarks |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 02 CK 200-150 | Rosenberger verification kits are delivered in stable wooden boxes including test reports and network analyzer measurements. <i>Lieferung von Verifizier-Kits erfolgt in stabiler Holzbox einschließlich Testreport und Messprotokoll.</i> |

Contents of Verification Kit

Inhalt des Verifizier-Kits

| Ordering Number | Components | Quantity | Remarks |
|------------------|------------------------------------------------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 02 AS 122-K20 S3 | 20 dB Attenuator <i>Dämpfungsglied</i> | 1 | Please use this part numbers for ordering single components. <i>Bitte diese Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.</i> |
| 02 AS 122-K40 S3 | 40 dB Attenuator <i>Dämpfungsglied</i> | 1 | |
| 02 S 101-K075 | 50 Ω Air line <i>Luftleitung</i> | 1 | |
| 02 S 102-K075 | 25 Ω Mismatch air line <i>Fehlabschluss-Luftleitung</i> | 1 | |


Electrical Specifications

| Devices Komponenten | Parameters Parameter | Specifications Spezifikation | Frequency range in GHz Frequenzbereich in GHz |
|-------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|----------------------------------------------------|
| 20 dB Attenuator 20-dB-Dämpfungsglied (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 32 dB | DC to ≤ 4 |
| | Return Loss <i>Rückflussdämpfung</i> | ≥ 20.1 dB | > 4 to ≤ 40 |
| | Insertion Loss <i>Dämpfung</i> | 20 dB \pm 0.30 dB | DC to ≤ 40 |
| 40 dB Attenuator 40-dB-Dämpfungsglied (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 32 dB | DC to ≤ 4 |
| | Return Loss <i>Rückflussdämpfung</i> | ≥ 20.1 dB | > 4 to ≤ 40 |
| | Insertion Loss <i>Dämpfung</i> | 40 dB \pm 0.40 dB | DC to ≤ 4 |
| | Insertion Loss <i>Dämpfung</i> | 40 dB \pm 0.80 dB | > 4 to ≤ 40 |
| 50 Ω Air line 50- Ω -Luftleitung (male and female) | Return Loss <i>Rückflussdämpfung</i> | ≥ 38 dB | 0.3 to ≤ 4 |
| | Return Loss <i>Rückflussdämpfung</i> | ≥ 30 dB | > 4 to ≤ 40 |
| | Insertion Loss <i>Dämpfung</i> | ≤ 0.38 dB | 0.3 to ≤ 40 |
| | 50 Ω Air line Outer Conductor <i>Außenleiter:</i> Diameter <i>Durchmesser</i> Length <i>Länge</i> Inner Conductor <i>Innenleiter:</i> Diameter <i>Durchmesser</i> Length <i>Länge</i> | 2.9235 mm \pm 0.005 mm 75.00 mm + 0.02 mm 1.270 mm \pm 0.005 mm 75.00 mm - 0.02 mm | |
| 25 Ω Mismatch air line 25- Ω -Fehlabschluss-Luftleitung (male and female) | 25 Ω Mismatch air line Outer Conductor <i>Außenleiter:</i> Diameter <i>Durchmesser</i> Length <i>Länge</i> Inner Conductor <i>Innenleiter:</i> Diameter <i>Durchmesser</i> | 2.9235 mm \pm 0.005 mm 75.00 mm + 0.02 mm | |
| | -50 Ω Section <i>Abschnitt</i> | 1.270 mm \pm 0.007 mm | |
| | -25 Ω Section <i>Abschnitt</i> | 1.927 mm \pm 0.005 mm | |
| | Length <i>Länge</i> | | |
| | -Total | 75.00 mm - 0.02 mm | |
| | -25 Ω Section <i>Abschnitt</i> | 50.00 mm \pm 0.050 mm | |

Gauge Kit RPC-N 50 Ω

Gauge Kit

RPC-N 50 Ω

| Ordering Number | Remarks | |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 05 GK OKS-000 | Rosenberger gauge kits are delivered in stable wooden box with gauge male/female incl. gauge block male/female. <i>Lieferung von Messuhren-Kits erfolgt in stabiler Holzbox, Messuhren einschließlich Kalibrier-Blocks.</i> |  |

Contents of Gauge Kit

Inhalt des Messuhren-Kits

| Ordering Number | Components | Quantity | Remarks |
|-----------------|--------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 05 W 00S-000 | Gauge male incl. block | 1 | Please use this part numbers for ordering single components. <i>Bitte diese Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.</i> |
| 05 W 00K-000 | Gauge female incl. block | 1 | |


Mechanical Specifications

| Mechanical data Mechanische Daten | |
|-------------------------------------|----------|
| Gauge range | ± 500 µm |
| Gauge scale gradation | 1 µm |
| Gauge accuracy | 5 µm |
| Gauge block flatness | ≤ 2 µm |
| Gauge block surface finish | ≤ 0.2 µm |

Gauge Kit RPC-N 75 Ω

Gauge Kit

RPC-N 75 Ω

| Ordering Number | Remarks | |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| P5 GK OKS-000 | Rosenberger gauge kits are delivered in stable wooden box with gauge male/female incl. gauge block male/female. <i>Lieferung von Messuhren-Kits erfolgt in stabiler Holzbox, Messuhren einschließlich Kalibrier-Blocks.</i> |  |

Contents of Gauge Kit

Inhalt des Messuhren-Kits

| Ordering Number | Components | Quantity | Remarks |
|-----------------|--------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P5 W 00S-000 | Gauge male incl. block | 1 | Please use this part numbers for ordering single components. <i>Bitte diese Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.</i> |
| 05 W 00K-000 | Gauge female incl. block | 1 | |

Mechanical Specifications

| Mechanical data Mechanische Daten | |
|-------------------------------------|----------|
| Gauge range | ± 500 μm |
| Gauge scale gradation | 1 μm |
| Gauge accuracy | 5 μm |
| Gauge block flatness | ≤ 2 μm |
| Gauge block surface finish | ≤ 0.2 μm |

Gauge Kit RPC-TNC

Gauge Kit

RPC-TNC

| Ordering Number | Remarks |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 06 GK OKS-000 | Rosenberger gauge kits are delivered in stable wooden box with gauge male/female incl. gauge block male/female. <i>Lieferung von Messuhren-Kits erfolgt in stabiler Holzbox, Messuhren einschließlich Kalibrier-Blocks.</i> |

Contents of Gauge Kit

Inhalt des Messuhren-Kits

| Ordering Number | Components | Quantity | Remarks |
|-----------------|--------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 06 W 00S-000 | Gauge male incl. block | 1 | Please use this part numbers for ordering single components. <i>Bitte diese Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.</i> |
| 06 W 00K-000 | Gauge female incl. block | 1 | |

Mechanical Specifications

| Mechanical data Mechanische Daten | |
|-------------------------------------|----------|
| Gauge range | ± 500 µm |
| Gauge scale gradation | 1 µm |
| Gauge accuracy | 5 µm |
| Gauge block flatness | ≤ 2 µm |
| Gauge block surface finish | ≤ 0.2 µm |

Gauge Kit RPC-7

Gauge Kit

RPC-7

| Ordering Number | Remarks |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07 GK 000 001 | Rosenberger gauge kits are delivered in stable wooden box with gauge incl. gauge block. <i>Lieferung von Messuhren-Kits erfolgt in stabiler Holzbox, Messuhr einschließlich Kalibrier-Block.</i> |

Contents of Gauge Kit

Inhalt des Messuhren-Kits

| Ordering Number | Components | Quantity | Remarks |
|-----------------|-------------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| 07 W 001-000 | Gauge incl. block | 1 | Please use this part number for ordering single components. <i>Bitte diese Artikel-Nummer für Nachbestellungen von Einzel-Komponenten verwenden.</i> |


Mechanical Specifications

| Mechanical data <i>Mechanische Daten</i> | |
|--------------------------------------------|------------------------|
| Gauge range | $\pm 500 \mu\text{m}$ |
| Gauge scale gradation | $1 \mu\text{m}$ |
| Gauge accuracy | $5 \mu\text{m}$ |
| Gauge block flatness | $\leq 2 \mu\text{m}$ |
| Gauge block surface finish | $\leq 0.2 \mu\text{m}$ |

Gauge Kit RPC-3.50 / RPC-2.92

Gauge Kit

RPC-3.50 / RPC-2.92

| Ordering Number | Remarks | |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 03 GK OKS-000 | Rosenberger gauge kits are delivered in stable wooden box with gauge male/female incl. gauge block male/female. <i>Lieferung von Messuhren-Kits erfolgt in stabiler Holzbox, Messuhren einschließlich Kalibrier-Blocks.</i> |  |

Contents of Gauge Kit

Inhalt des Messuhren-Kits

| Ordering Number | Components | Quantity | Remarks |
|-----------------|--------------------------|----------|-------------------------------------------------------------------------------------------|
| 03 W 00S-000 | Gauge male incl. block | 1 | Please use this part numbers for ordering single components. |
| 03 W 00K-000 | Gauge female incl. block | 1 | <i>Bitte diese Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.</i> |

Mechanical Specifications

| Mechanical data <i>Mechanische Daten</i> | |
|--------------------------------------------|----------|
| Gauge range | ± 500 µm |
| Gauge scale gradation | 1 µm |
| Gauge accuracy | 5 µm |
| Gauge block flatness | ≤ 2 µm |
| Gauge block surface finish | ≤ 0.2 µm |

Gauge Kit RPC-2.40 / RPC-1.85

Gauge Kit

RPC-2.40 / RPC-1.85

| Ordering Number | Remarks | |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 08 GK OKS-000 | Rosenberger gauge kits are delivered in stable wooden box with gauge male/female incl. gauge block male/female. <i>Lieferung von Messuhren-Kits erfolgt in stabiler Holzbox, Messuhren einschließlich Kalibrier-Blocks.</i> |  |

Contents of Gauge Kit

Inhalt des Messuhren-Kits

| Ordering Number | Components | Quantity | Remarks |
|-----------------|--------------------------|----------|-------------------------------------------------------------------------------------------|
| 08 W 00S-000 | Gauge male incl. block | 1 | Please use this part numbers for ordering single components. |
| 08 W 00K-000 | Gauge female incl. block | 1 | <i>Bitte diese Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.</i> |


Mechanical Specifications

| Mechanical data Mechanische Daten | |
|-------------------------------------|------------------------|
| Gauge range | $\pm 500 \mu\text{m}$ |
| Gauge scale gradation | $1 \mu\text{m}$ |
| Gauge accuracy | $5 \mu\text{m}$ |
| Gauge block flatness | $\leq 2 \mu\text{m}$ |
| Gauge block surface finish | $\leq 0.2 \mu\text{m}$ |

Gauge Kit RPC-1.00

Gauge Kit

RPC-1.00

| Ordering Number | Remarks | |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| 01 GK OKS-000 | Rosenberger gauge kits are delivered in stable wooden box with gauge male/female incl. gauge block male/female. <i>Lieferung von Messuhren-Kits erfolgt in stabiler Holzbox, Messuhren einschließlich Kalibrier-Blocks.</i> |  |

Contents of Gauge Kit

Inhalt des Messuhren-Kits

| Ordering Number | Components | Quantity | Remarks |
|-----------------|--------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 01 W 00S-000 | Gauge male incl. block | 1 | Please use this part numbers for ordering single components. <i>Bitte diese Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.</i> |
| 01 W 00K-000 | Gauge female incl. block | 1 | |

Mechanical Specifications

| Mechanical data <i>Mechanische Daten</i> | |
|--------------------------------------------|------------------------|
| Gauge range | $\pm 500 \mu\text{m}$ |
| Gauge scale gradation | $1 \mu\text{m}$ |
| Gauge accuracy | $5 \mu\text{m}$ |
| Gauge block flatness | $\leq 2 \mu\text{m}$ |
| Gauge block surface finish | $\leq 0.2 \mu\text{m}$ |

Gauge Kit RPC-7-16

Gauge Kit

7-16

| Ordering Number | Remarks |
|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 60 GK OKS-000 | Rosenberger gauge kits are delivered in stable wooden box with gauge male/female incl. gauge block male/female. <i>Lieferung von Messuhren-Kits erfolgt in stabiler Holzbox, Messuhren einschließlich Kalibrier-Blocks.</i> |

Contents of Gauge Kit

Inhalt des Messuhren-Kits

| Ordering Number | Components | Quantity | Remarks |
|-----------------|--------------------------|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 60 W 00S-000 | Gauge male incl. block | 1 | Please use this part numbers for ordering single components. <i>Bitte diese Artikel-Nummern für Nachbestellungen von Einzel-Komponenten verwenden.</i> |
| 60 W 00K-000 | Gauge female incl. block | 1 | |

Mechanical Specifications

| Mechanical data Mechanische Daten | |
|-------------------------------------|------------------------|
| Gauge range | $\pm 500 \mu\text{m}$ |
| Gauge scale gradation | $1 \mu\text{m}$ |
| Gauge accuracy | $5 \mu\text{m}$ |
| Gauge block flatness | $\leq 2 \mu\text{m}$ |
| Gauge block surface finish | $\leq 0.2 \mu\text{m}$ |

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