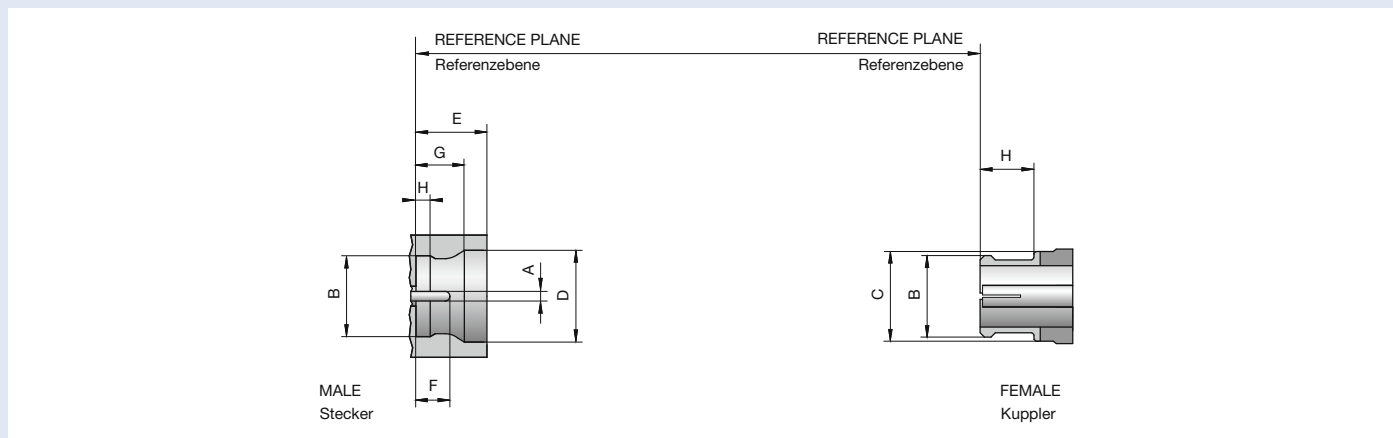


## Interface Dimensions Mini-SMP

## Code 18



## Mini-SMP

|                | Male   Stecker |      |             |      | Female   Kuppler |         |
|----------------|----------------|------|-------------|------|------------------|---------|
| dimension [mm] | Smooth bore    |      | Full detent |      |                  |         |
|                | min.           | max. | min.        | max. | min.             | max.    |
| A              | 0.28           | 0.33 | 0.28        | 0.33 |                  |         |
| B              | 2.18           | 2.24 | 2.18        | 2.24 |                  | 2.24 1) |
| C              |                |      |             |      |                  | 2.79    |
| D              | 2.82           | 2.92 | 2.82        | 2.92 |                  |         |
| E              | 2.08           | 2.13 | 2.08        | 2.13 |                  |         |
| F              | 0.76           | 1.14 | 0.76        | 1.14 |                  |         |
| G              |                |      | 1.57        | 1.83 |                  |         |
| H              |                |      | 0.53        | 0.58 | 1.73             |         |

1) Dimension to meet mechanical / electrical requirements

Mini-SMP connectors are extremely small coaxial connectors - approx. 70% of SMP size - for applications up to 65 GHz, mainly high-speed signal transmission, e.g. 10 or 40 Gbit/s. Plugs are available as smooth bore-versions - for plug-in technology and back plane applications - and as vibration-resistant full detent types for highest mechanical loads, e.g. in aerospace engineering.

Mini-SMP coaxial connectors are mateable with GPPO™ (Gilbert Engineering Co., Inc.) and SSMP™ (Connector Devices, Inc.) series. PCB connectors are supplied in blister tapes.

Mini-SMP-Steckverbinder sind extrem kleine Koaxial-Steckverbinder - 70% Baugröße im Vergleich zu SMP - für Anwendungen bis 65 GHz. Hauptanwendung ist die Übertragung von Hochgeschwindigkeitssignalen, z. B. bei 10 oder 40 Gbit/s. Stecker werden als Smooth bore-Ausführung - für Einschubtechnik- und "Back Plane"-Anwendungen - und als vibrationsstabile Full detent-Bauformen für höchste mechanische Beanspruchungen, z.B. in Luft- und Raumfahrt, angeboten.

Mini-SMP-Koaxial-Steckverbinder sind steckkompatibel mit den Steckverbinder-Serien GPPO™ (Gilbert Engineering Co., Inc.) und SSMP™ (Connector Devices, Inc.), PCB-Steckverbinder werden in Blistergurt-Verpackungen ausgeliefert.

## Features

Interface according to US MIL-STD 348A, Fig. 328  
 Frequency range DC to 65 GHz  
 Return loss (cable connector straight)  $\geq 16$  dB @ DC to 26.5 GHz  
 Impedance 50  $\Omega$   
 Minimum board-to-board distance  $\geq 7.95$  mm  
 Snap-on coupling

## Technical Data Mini-SMP

## Code 18

| Applicable standards   Anwendbare Normen                                                       |                                                                                                                     |
|------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Interface according to   Interface gemäß                                                       | MIL-STD-348A, Fig. 328<br>Mateable with GPPO™ (Gilbert Engineering Co., Inc) and<br>SSMP™ (Connectors Devices, Inc) |
| Quality tested according to   Qualitätsprüfung gemäß                                           | MIL-STD-202                                                                                                         |
| Electrical data   Elektrische Daten                                                            |                                                                                                                     |
| Impedance   Wellenwiderstand                                                                   | 50 $\Omega$                                                                                                         |
| Frequency range   Frequenzbereich                                                              | DC to 65 GHz                                                                                                        |
| Return loss   Rückflusdämpfung                                                                 | $\geq 26$ dB @ DC to 26.5 GHz<br>$\geq 17$ dB @ 26.5 GHz to 50 GHz<br>$\geq 14$ dB @ 50 GHz to 65 GHz               |
| Insertion loss   Dämpfung                                                                      | $\leq 0.1 \times \sqrt{f}$ (GHz) dB                                                                                 |
| Insulation resistance   Isolationswiderstand                                                   | $\geq 5$ G $\Omega$                                                                                                 |
| Center contact resistance   Übergangswiderstand Innenleiter                                    | $\leq 6$ m $\Omega$                                                                                                 |
| Outer contact resistance   Übergangswiderstand Außenleiter                                     | $\leq 2$ m $\Omega$                                                                                                 |
| Working voltage   Betriebsspannung                                                             | 325 V rms                                                                                                           |
| Mechanical data   Mechanische Daten                                                            |                                                                                                                     |
| Mating cycles   Steckzyklen                                                                    | Full detent: $\geq 100$<br>Smooth bore: $\geq 500$                                                                  |
| Center contact captivation   Innenleiter Haltekraft                                            | axial: $\geq 7$ N                                                                                                   |
| Engagement force   Steckkraft                                                                  | Full detent: $\leq 19$ N<br>Smooth bore: $\leq 11$ N                                                                |
| Disengagement force   Ziehkraft                                                                | Full detent: $\geq 29$ N<br>Smooth bore: $\geq 11$ N                                                                |
| Board-to-board distance (min.)   Board-to-Board Abstand (min.)                                 | 7.95 mm                                                                                                             |
| Environmental data   Umweltdaten                                                               |                                                                                                                     |
| Temperature range   Temperaturbereich                                                          | -55 °C to +155 °C                                                                                                   |
| Thermal shock   Temperaturzyklen                                                               | MIL-STD-202, Method 107, Condition B                                                                                |
| Moisture resistance   Feuchtigkeitsbeständigkeit                                               | MIL-STD-202, Method 106                                                                                             |
| Vibration   Vibration                                                                          | MIL-STD-202, Method 204, Condition B                                                                                |
| Shock   Schock                                                                                 | MIL-STD-202, Method 213, Condition A                                                                                |
| Max. soldering temperature (PCB connectors)   Max. Löttemperatur (Leiterplattensteckverbinder) | IEC 61760-1, +260 °C for 10 sec.                                                                                    |
| Materials   Materialien                                                                        |                                                                                                                     |
| Spring loaded contact parts   Federnde Kontaktteile                                            | CuBe, Au plating                                                                                                    |
| Center contact   Innenleiter                                                                   | CuZn / CuBe, Au plating                                                                                             |
| Outer contact   Außenleiter                                                                    | CuZn / CuBe, Au plating                                                                                             |
| Crimping ferrule   Crimphülse                                                                  | Copper alloy, Au plating                                                                                            |
| Dielectric   Dielektrikum                                                                      | PTFE                                                                                                                |

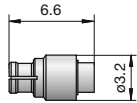
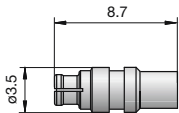
Rosenberger-connectors fulfill in principle the indicated data of the Technical Data. Individual values of connectors may deviate depending upon application, design, type of cable, assembly method and execution. Specific data sheets for particular products can be provided on request from your Rosenberger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

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.

## Cable Connectors Semi-Rigid Cables

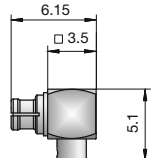
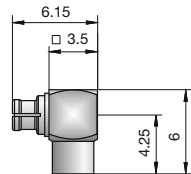
Straight Jack

Semi-Rigid Cables

| Ordering Number | Cable Group | Assembly Instruction | Packing Unit |                                                                                     |
|-----------------|-------------|----------------------|--------------|-------------------------------------------------------------------------------------|
| 18 K 101-270 L5 | 70          | 18 A                 | 100          |  |
| 18 K 102-271 L5 | 71          | 18 A1                | 100          |  |

Right Angle Jack

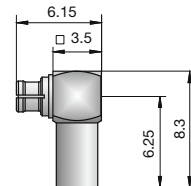
Semi-Rigid Cables

| Ordering Number | Cable Group | Assembly Instruction | Packing Unit |                                                                                       |
|-----------------|-------------|----------------------|--------------|---------------------------------------------------------------------------------------|
| 18 K 202-270 L5 | 70          | 18 B1                | 100          |   |
| 18 K 201-271 L5 | 71          | 18 B1                | 100          |  |

## Cable Connectors - Flexible Cables

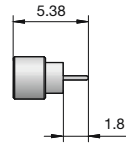
Right Angle Jack, solder crimp

Flexible Cables

| Ordering Number | Cable Group | Assembly Instruction | Crimp Inserts | Packing Unit |                                                                                       |
|-----------------|-------------|----------------------|---------------|--------------|---------------------------------------------------------------------------------------|
| 18 K 201-301 L5 | 01          | 18 C                 | 11 W 150-101  | 100          |  |

## Panel Connectors - Coaxial End

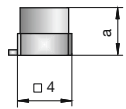
Panel Plug

| Ordering Number | Remarks                        | Assembly Instruction | Packing unit |                                                                                     |
|-----------------|--------------------------------|----------------------|--------------|-------------------------------------------------------------------------------------|
| 18 S 101-5H0 E4 | Full detent<br>hermetic sealed | 18 D                 | 100          |  |

## PCB Connectors - SMD

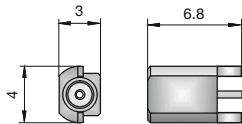
Straight Plug

SMD

| Ordering Number | Version | Remarks                                                                                                            | Panel Piercing / PCB Layout | Packing     | Packing Unit                     |                                                                                     |
|-----------------|---------|--------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------|----------------------------------|-------------------------------------------------------------------------------------|
| 18 S 101-40M L5 | economy | Full detent<br>Frequency: DC to 26 GHz,<br>a = 3.4 mm                                                              | B 204                       | VG 45.1M500 | 200 blister,<br>1500 tape & reel |  |
| 18 S 102-40M L5 |         | Full detent<br>Frequency: DC to 65 GHz,<br>a = 4.07 mm                                                             | B 209                       | VG 45.1M500 | 200 blister,<br>1500 tape & reel |                                                                                     |
| 18 S 141-40M L5 | economy | Smooth bore<br>Frequency: DC to 26 GHz,<br>a = 3.4 mm                                                              | B 204                       |             | 200 blister                      |                                                                                     |
| 18 S 142-40M L5 |         | Smooth bore<br>Frequency: DC to 65 GHz,<br>a = 4.07 mm                                                             | B 209                       |             | 200 blister                      |                                                                                     |
| 18 S 143-40M L5 |         | Smooth bore<br>Frequency: DC to 65 GHz,<br>a = 4.07 mm<br>removable plastic cap on suction<br>area for tape & reel | B 209                       | VG 45.1M501 | 1500 tape & reel                 |                                                                                     |

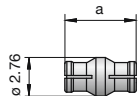
Right Angle Plug

SMD

| Ordering Number | Remarks                                | Panel Piercing / PCB Layout | Packing     | Packing Unit                  |                                                                                       |
|-----------------|----------------------------------------|-----------------------------|-------------|-------------------------------|---------------------------------------------------------------------------------------|
| 18 S 203-40M L5 | Full detent<br>Frequency: DC to 65 GHz | B 203                       | VG 50.2M500 | 200 blister, 2500 tape & reel |  |
| 18 S 243-40M L5 | Smooth bore<br>Frequency: DC to 65 GHz | B 203                       |             | 200 blister                   |                                                                                       |

## Adaptors

Bullet female-female

| Ordering Number | Nominal Board-to-Board Distance <sup>1)</sup> | Bullet Length <sup>2)</sup> | Minimum Board-to-Board Distance <sup>3)</sup> | Maximum Radial Tolerance <sup>4)</sup> | Packing Unit |                                                                                     |
|-----------------|-----------------------------------------------|-----------------------------|-----------------------------------------------|----------------------------------------|--------------|-------------------------------------------------------------------------------------|
| 18 K 101-K00 L5 | 8.04 mm                                       | a = 5.30 mm                 | 7.94 mm                                       | 0.36 mm                                | 100          |  |
| 18 K 118-K04 L5 | 10.11 mm                                      | a = 7.37 mm                 | 10.01 mm                                      | 5)                                     | 250          |                                                                                     |
| 18 K 104-K00 L5 | 11.22 mm                                      | a = 8.48 mm                 | 11.12 mm                                      | 5)                                     | 500          |                                                                                     |
| 18 K 107-K00 L5 | 13.72 mm                                      | a = 10.97 mm                | 13.62 mm                                      | 5)                                     | 250          |                                                                                     |

1) When standard SMD-connectors are applied  
(e.g. 18 S 101-40M, 18 S 141-40M).

2) Bullets with special lengths on request.

3) Applying radial misalignment increases the minimum board-to-board distance in vertical direction by max. 0.2 mm. Please note: Solder paste thickness not included.

4) The maximum radial tolerance compensation is calculated by:  $\sin(4^\circ) \times \text{bullet length}$ . Please note that the maximum possible misalignment of the axes to each other, as well as the maximum capture area of the PCB connectors (smooth bore types) have an impact on the quality and performance of the high frequency connection.

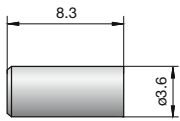
5) The maximum radial tolerance is limited to 0.4 mm because of the limited guide in range of the second PCB connector.

## Adaptors (Inter Series)

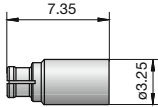
| Ordering Number | Version  | Remarks                           | Return Loss                                                                                       | Packing Unit |  |
|-----------------|----------|-----------------------------------|---------------------------------------------------------------------------------------------------|--------------|--|
| 08 S 118-S00 S3 | straight | RPC-1.85 male - Mini-SMP male     | $\geq 30$ dB @ DC to 12 GHz<br>$\geq 18$ dB @ 12 GHz to 50 GHz<br>$\geq 15$ dB @ 50 GHz to 65 GHz | 1            |  |
| 08 S 118-K00 S3 | straight | RPC-1.85 male - Mini-SMP female   | $\geq 30$ dB @ DC to 12 GHz<br>$\geq 18$ dB @ 12 GHz to 50 GHz<br>$\geq 15$ dB @ 50 GHz to 65 GHz | 1            |  |
| 08 K 118-S00 S3 | straight | RPC-1.85 female - Mini-SMP male   | $\geq 30$ dB @ DC to 12 GHz<br>$\geq 18$ dB @ 12 GHz to 50 GHz<br>$\geq 15$ dB @ 50 GHz to 65 GHz | 1            |  |
| 08 K 118-K00 S3 | straight | RPC-1.85 female - Mini-SMP female | $\geq 30$ dB @ DC to 12 GHz<br>$\geq 18$ dB @ 12 GHz to 50 GHz<br>$\geq 15$ dB @ 50 GHz to 65 GHz | 1            |  |
| 02 S 118-S00 S3 | straight | RPC-2.92 male - Mini-SMP male     | $\geq 30$ dB @ DC to 12 GHz<br>$\geq 26$ dB @ 12 GHz to 20 GHz<br>$\geq 18$ dB @ 20 GHz to 40 GHz | 1            |  |
| 02 S 118-K00 S3 | straight | RPC-2.92 male - Mini-SMP female   | $\geq 30$ dB @ DC to 12 GHz<br>$\geq 26$ dB @ 12 GHz to 20 GHz<br>$\geq 18$ dB @ 20 GHz to 40 GHz | 1            |  |
| 02 K 118-S00 S3 | straight | RPC-2.92 female - Mini-SMP male   | $\geq 30$ dB @ DC to 12 GHz<br>$\geq 26$ dB @ 12 GHz to 20 GHz<br>$\geq 18$ dB @ 20 GHz to 40 GHz | 1            |  |
| 02 K 118-K00 S3 | straight | RPC-2.92 female - Mini-SMP female | $\geq 30$ dB @ DC to 12 GHz<br>$\geq 26$ dB @ 12 GHz to 20 GHz<br>$\geq 18$ dB @ 20 GHz to 40 GHz | 1            |  |

## Terminations

### Termination Plug

| Ordering Number | Remarks                             | Return Loss                                                                                                 | Packing Unit |                                                                                     |
|-----------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|
| 18 S 15R-0.5 E3 | 0.5 Watt<br>Frequency: DC to 40 GHz | $\geq 26.4$ dB @ DC to 18 GHz<br>$\geq 17.7$ dB @ 18 GHz to 26.5 GHz<br>$\geq 16.6$ dB @ 26.5 GHz to 40 GHz | 1            |  |

### Termination Jack

| Ordering Number | Remarks                             | Return Loss                                                                                                 | Packing Unit |                                                                                     |
|-----------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------|--------------|-------------------------------------------------------------------------------------|
| 18 K 15R-0.5 E3 | 0.5 Watt<br>Frequency: DC to 40 GHz | $\geq 26.4$ dB @ DC to 18 GHz<br>$\geq 17.7$ dB @ 18 GHz to 26.5 GHz<br>$\geq 16.6$ dB @ 26.5 GHz to 40 GHz | 1            |  |

Special Tools

Extraction Tool

| Ordering Number | Remarks                 | Packing Unit |  |
|-----------------|-------------------------|--------------|--|
| 18 W 002-000    | for Mini-SMP connectors | 1            |  |