

## CSE-SGMR-152-SGMR

### SMA Right-Angle Plug to SMA Right-Angle Plug Cable Assembly

The CSE-SGMR-152-SGMR cable assembly provides an SMA plug (male pin) to SMA plug (male pin) connection with 6 in. of RG-316/U coaxial cable.

Operating from 0 Hz to 3 GHz, the CSE-SGMR-152-SGMR cable assembly combines superior performance, compact size, and a convenient threaded mating interface to provide a reliable, easy-to-use cable assembly. Additionally, all Linx coaxial cables and connectors meet RoHS lead free standards and are tested to meet requirements for corrosion resistance, vibration, mechanical and thermal shock.



#### Features

- 0 Hz to 3 GHz operation
- SMA right-angle plug (male pin)
  - Gold plated brass construction
  - Right-angle design
- RG-316/U 50  $\Omega$  coaxial cable

#### Applications

- LPWA
- Cellular IoT – LTE-M (Cat-M1), NB-IoT
- Cellular – 5G/4G LTE/3G/2G
- PC, LAN
- ISM – Bluetooth®, ZigBee®
- GNSS – GPS, Galileo, GLONASS, BeiDou, QZSS
- Automotive, Industrial, Commercial, Enterprise

Table 1. Electrical Specifications

| Parameter               | Value               |
|-------------------------|---------------------|
| Insertion Loss (dB max) | 0.9                 |
| VSWR (max)              | 1.7                 |
| Impedance               | 50 $\Omega$         |
| Insulation Resistance   | 500 M $\Omega$ min. |

#### Ordering Information

| Part Number       | Description                                                                                                     |
|-------------------|-----------------------------------------------------------------------------------------------------------------|
| CSE-SGMR-152-SGMR | SMA right-angle plug (male pin) to SMA right-angle plug (male pin) on 152 mm (6.0 in) of RG-316/U coaxial cable |

Available from Linx Technologies and select distributors and representatives.

## Product Dimensions

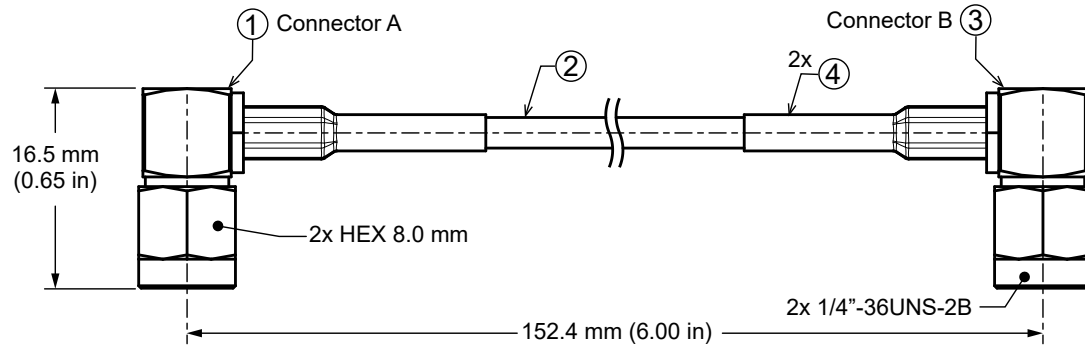


Figure 1. Product Dimensions for the CSE-SGMR-152-SGMR Cable Assembly

Table 2. Cable Assembly Components

| Item # | Description                                 | Material | Finish |
|--------|---------------------------------------------|----------|--------|
| 1      | Connector, SMA plug (male pin), right angle | Brass    | Gold   |
| 2      | RG-316/U coaxial cable                      | RG-316/U | Black  |
| 3      | Connector, SMA plug (male pin), right angle | Brass    | Gold   |
| 4      | Heat Shrink Tubing                          | PTFE     | Black  |

Table 3. Cable Assembly Mechanical Specifications

| Parameter                   | Connector A<br>SMA Plug (male pin), right angle | Connector B<br>SMA Plug (male pin), right angle |
|-----------------------------|-------------------------------------------------|-------------------------------------------------|
| Fastening Type              | 1/4\"-36UNS-2B threaded coupling                | 1/4\"-36UNS-2B threaded coupling                |
| Recommended Torque          | 0.9 N m (8.0 in lbs)                            | 0.9 N m (8.0 in lbs)                            |
| Coupling Nut Retention      | 60 lbs. min.                                    | 60 lbs. min.                                    |
| Connector Durability        | 500 cycles min.                                 | 500 cycles min.                                 |
| Operating Temperature Range | -40 °C to +120 °C                               |                                                 |
| Weight                      | 12.8 g (0.45 oz)                                |                                                 |

## Coaxial Cable Specifications

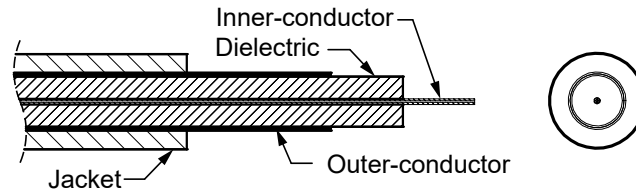


Figure 2. Coaxial Cable Cutaway Diagram

Table 4. Coaxial Cable Material Specifications for RG-316/U

| RG-316/U Coax   | Material                                               | Dimensions          |
|-----------------|--------------------------------------------------------|---------------------|
| Inner-Conductor | Tinned copper clad steel, 7 strand, 0.175 mm/conductor | Ø0.53 mm (0.020 in) |
| Dielectric      | FEP, Clear                                             | Ø1.53 mm (0.06 in)  |
| Outer-Conductor | Silver plated copper braid, Coverage 95%               | Ø1.71 mm (0.067 in) |
| Jacket          | FEP, natural                                           | Ø2.53 mm (0.100 in) |

Table 5. Coaxial Cable Electrical and Physical Specifications for RG-316/U

| Parameter                       | Value               |                  |                                    |                 |                 |
|---------------------------------|---------------------|------------------|------------------------------------|-----------------|-----------------|
| Rated Temp Voltage              | 105 °C 30 V         |                  |                                    |                 |                 |
| Conductor Resistance            | 302 Ω/km 20 °C max. |                  |                                    |                 |                 |
| Insulation Resistance           | 3000 M Ω-km min.    |                  |                                    |                 |                 |
| Dielectric Strength             | AC 1000 V/Minute    |                  |                                    |                 |                 |
| Spark Test                      | 5.0 kV              |                  |                                    |                 |                 |
| Insulation                      | Unaged              | Tensile Strength | 2500 psi min. (1.76 kg/mm²)        |                 |                 |
|                                 |                     | Elongation       | 200% min.                          |                 |                 |
|                                 | Aged                | Tensile Strength | Unaged min. 75% (168 hrs x 232 °C) |                 |                 |
|                                 |                     | Elongation       | Unaged min. 75% (168 hrs x 232 °C) |                 |                 |
| Jacket                          | Unaged              | Tensile Strength | 2500 psi min. (1.76 kg/mm²)        |                 |                 |
|                                 |                     | Elongation       | 200% min.                          |                 |                 |
|                                 | Aged                | Tensile Strength | Unaged min. 75% (168 hrs x 232 °C) |                 |                 |
|                                 |                     | Elongation       | Unaged min. 75% (168 hrs x 232 °C) |                 |                 |
| Nominal Impedance               | 50 ± 3 Ω            |                  |                                    |                 |                 |
| Nominal Capacitance             | 95.8 ± 3 pF/m       |                  |                                    |                 |                 |
| Nominal Velocity of Propagation | 69.5%               |                  |                                    |                 |                 |
| VSWR (0 to 6 GHz)               | ≤ 1.3               |                  |                                    |                 |                 |
| Attenuation (dB/1M)             | 2.0 GHz<br>2.80     | 2.4 GHz<br>3.10  | 2.5 GHz<br>3.15                    | 5.0 GHz<br>4.85 | 6.0 GHz<br>5.20 |
| Minimum Inside Bend radius      | 12.7 mm (0.5 in)    |                  |                                    |                 |                 |

### Insertion Loss

Figure 3 shows the Insertion Loss for the CSE-SGMR-152-SGMR cable assembly. Insertion loss is the loss of signal power (gain) resulting from the insertion of a device in a transmission line.

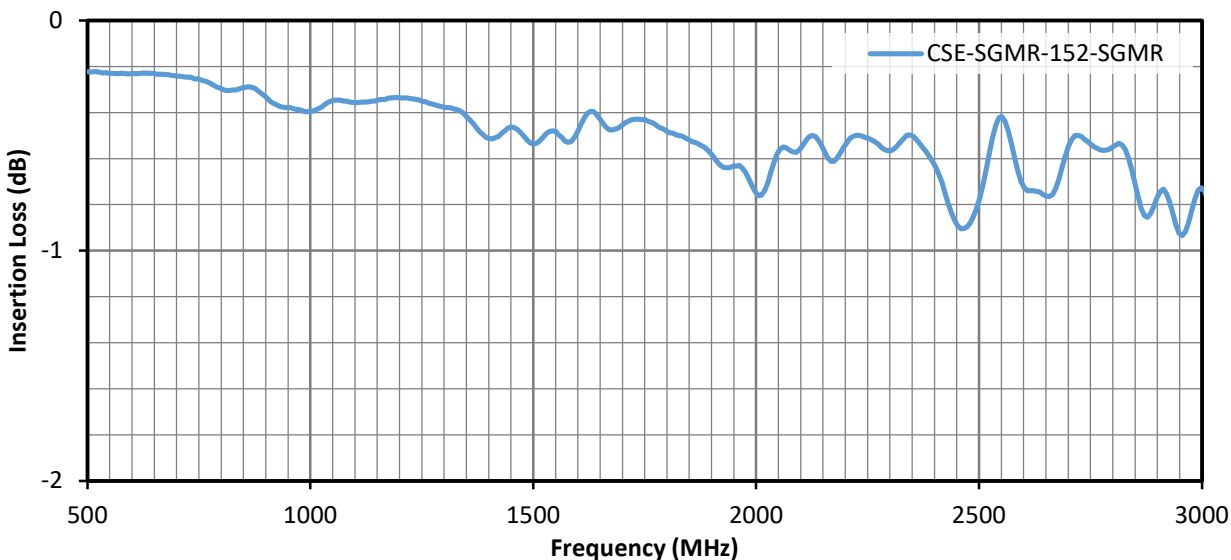


Figure 3. Insertion Loss for the CSE-SGMR-152-SGMR Cable Assembly

### VSWR

Figure 4 provides the voltage standing wave ratio (VSWR) across the cable assembly's bandwidth for the CSE-SGMR-152-SGMR cable assembly. VSWR describes how efficiently power is transmitted through the cable assembly. A lower VSWR value indicates better performance at a given frequency.

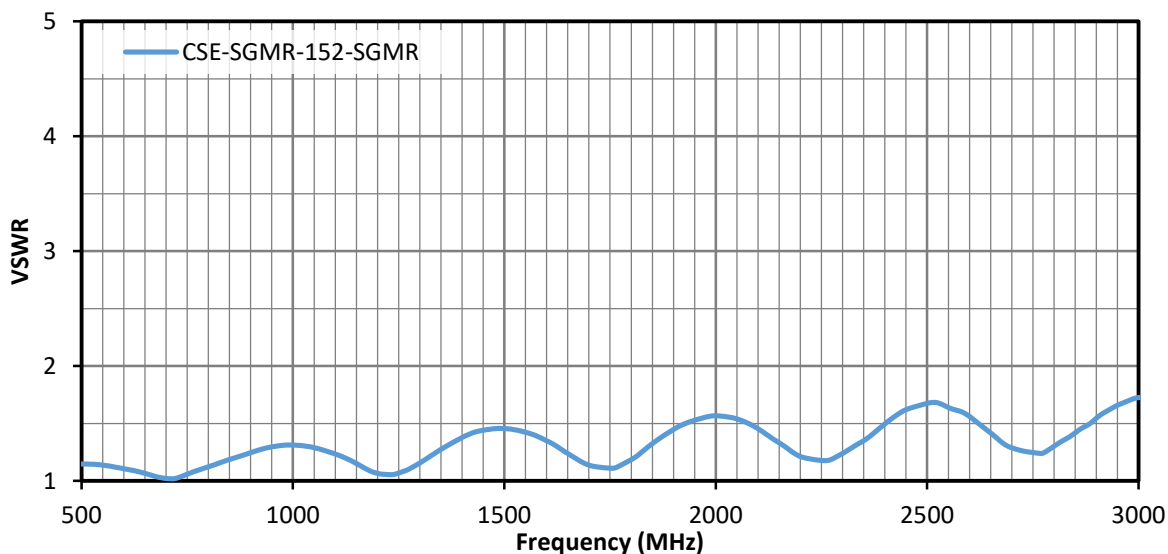


Figure 4. VSWR for the CSE-SGMR-152-SGMR Cable Assembly

### Packaging Information

The CSE-SGMR-152-SGMR cable assembly is packaged in a clear plastic bag, in quantities of 50. Distribution channels may offer alternative packaging options.

### Cable Assembly Definitions and Useful Formulas

**VSWR** - Voltage Standing Wave Ratio. VSWR is a unitless ratio that describes how efficiently power is transmitted through the cable assembly. A lower VSWR value indicates better performance at a given frequency. VSWR is easily derived from Return Loss.

$$VSWR = \frac{10^{\left[\frac{\text{Return Loss}}{20}\right]} + 1}{10^{\left[\frac{\text{Return Loss}}{20}\right]} - 1}$$

**Insertion Loss** - The loss of signal power (gain) resulting from the insertion of a device in a transmission line. Insertion loss can be derived from the power transmitted to the load before the insertion of the component  $P_T$  and the power transmitted to the load after the insertion of the component  $P_R$ .

$$\text{Insertion Loss (dB)} = 10 \log_{10} \frac{P_T}{P_R}$$

---

**Website:** <http://linxtechnologies.com>  
**Linx Offices:** 159 Ort Lane, Merlin, OR, US 97532  
**Phone:** +1 (541) 471-6256  
**E-MAIL:** [info@linxtechnologies.com](mailto:info@linxtechnologies.com)

---

Linx Technologies reserves the right to make changes to the product(s) or information contained herein without notice. No liability is assumed as a result of their use or application. No rights under any patent accompany the sale of any such product(s) or information.

Wireless Made Simple is a registered trademark of Linx Acquisitions LLC. Other product and brand names may be trademarks or registered trademarks of their respective owners.

Copyright © 2022 Linx Technologies

All Rights Reserved

Doc# DS22160-238CON

