

## BC241: Bidirectional Coupler 900 MHz for 7-16 Coaxial Line

### General Description

BC241 (Fig. 1) is a dual directional (bidirectional) coupler intended for simultaneous sampling of the powers of both incident and reflected waves in high-power 900 MHz industrial applications using the main coaxial line with 7-16 DIN connectors.

The coupling mechanism involves two probes (antennas) inserted into the main transmission line, outputs of which are appropriately combined and distributed to the two output connectors.

The coupler integrates two attenuators to isolate the internal coupling structure from the coupled port loads, and to improve the coupled port match.

The coupling factor is -60 dB, allowing the maximal main line input power 2 kW.



Fig. 1. Bidirectional coupler BC241.

### Specifications

Frequency range	895 – 925 MHz
Main line characteristic impedance	50 Ω
Main line connectors	7-16 DIN male – 7-16 DIN female
Coupling factor/Max input power	-60 dB / 2 kW
Coupling factor uncertainty limits (3-σ deviation)	±1 dB
Directivity	25 dB min
Coupled ports characteristic impedance	50 Ω
Coupled ports connectors	BC241N: N-female (Nf) BC241S: SMA-female (SMAf)
Surface finish	E-CLPS 4600
Mass	420 g
Dimensions (L x W x H)	BC241N: 159.4 mm × 62.7 mm × 42 mm BC241S: 159.4 mm × 51.5 mm × 42 mm
Operating temperature range	-10 to +65 °C
Storage temperature range	-20 to +80 °C

Typical Coupling Factor and Directivity

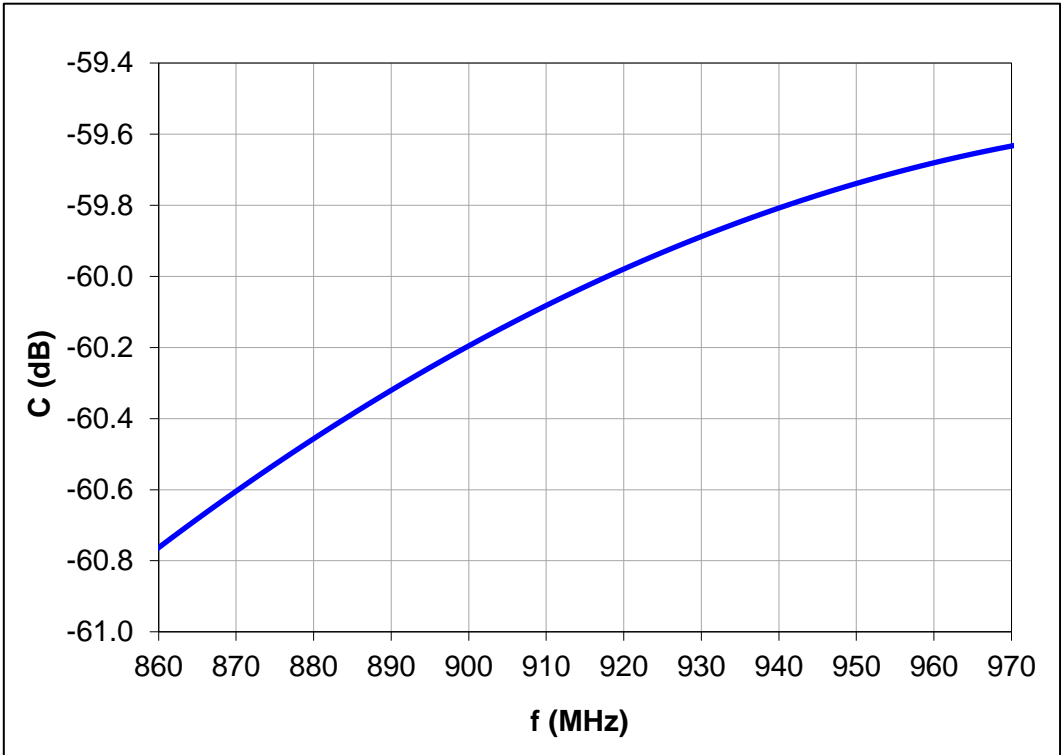


Fig. 2. Typical BC241 coupling factor (both directions).

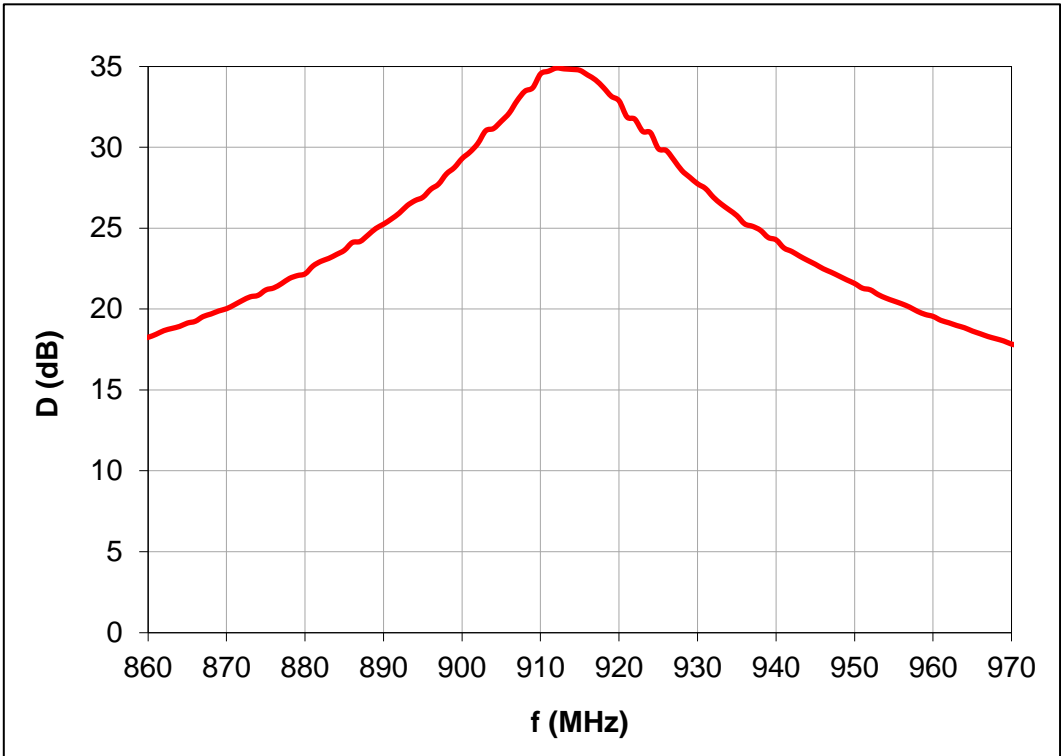


Fig. 3. Typical BC241 directivity (both directions).

Dimensional Drawings

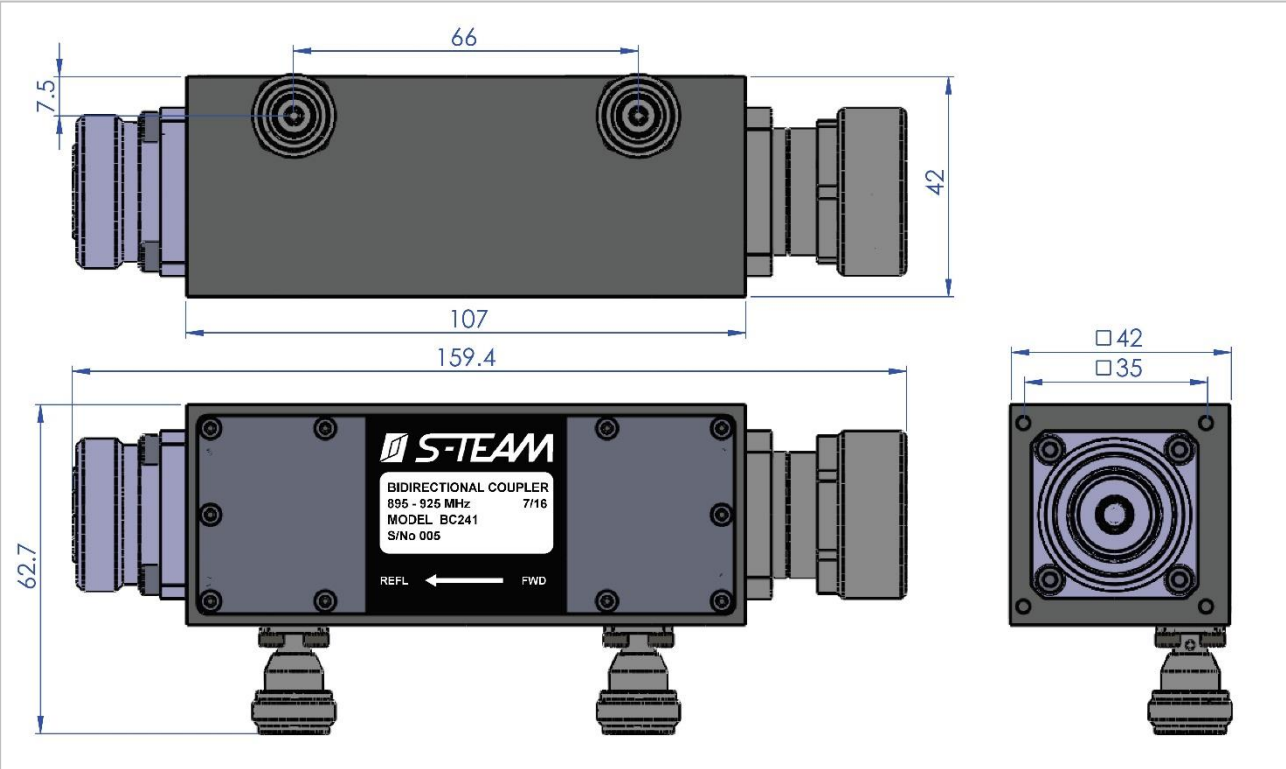


Fig. 4. Basic BC241N dimensions in millimeters.

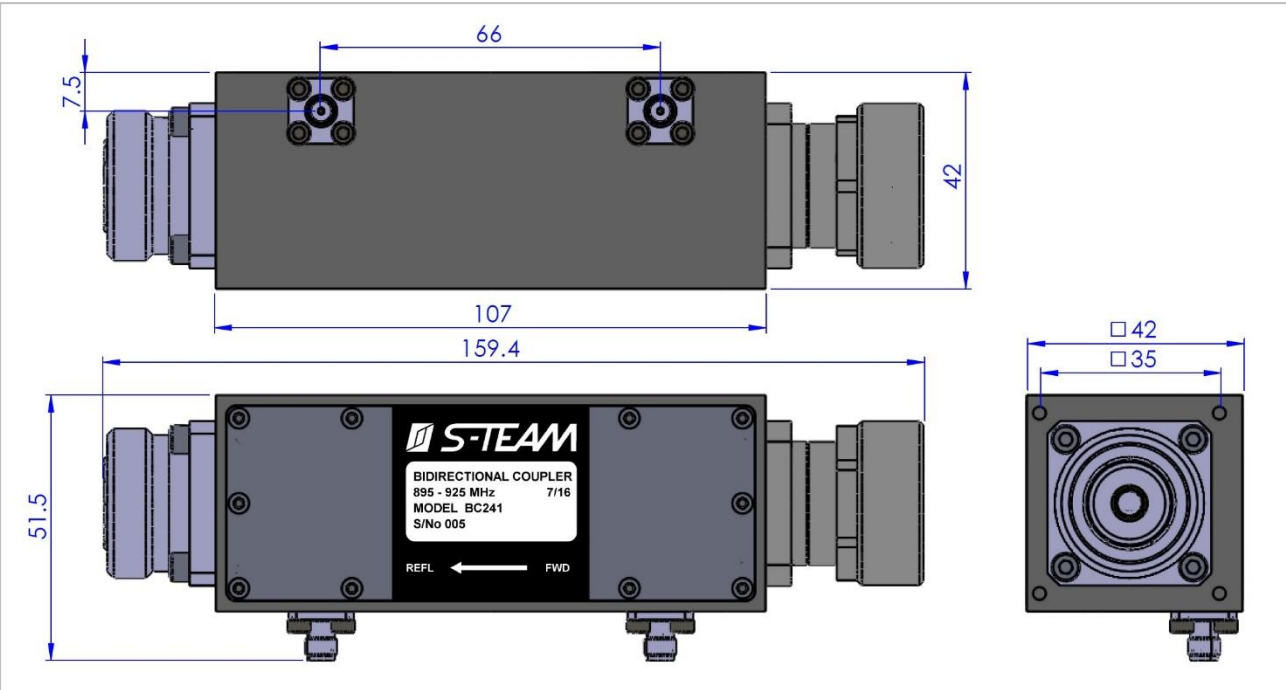


Fig. 5. Basic BC241S dimensions in millimeters.