

Coaxial

# Bi-Directional Coupler

50Ω

Up to 10W

860 to 970 MHz

ZFBDC20-970HP



CASE STYLE: J17

Connectors Model  
SMA ZFBDC20-970HP  
BRACKET (OPTION "B")

## Maximum Ratings

Operating Temperature -55°C to 100°C

Storage Temperature -55°C to 100°C

Permanent damage may occur if any of these limits are exceeded.

## Coaxial Connections

|                   |   |
|-------------------|---|
| INPUT             | 2 |
| OUTPUT            | 3 |
| COUPLED (forward) | 1 |
| COUPLED (reverse) | S |

## Features

- very low mainline loss, 0.1 dB typ.
- excellent directivity, 28 dB typ.
- excellent VSWR, 1.1: typ.
- high power operation, 10W

## Applications

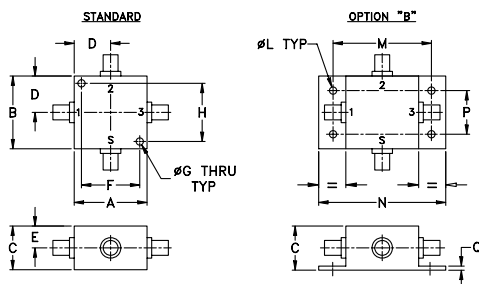
- VSWR measurement
- power monitoring of cellular transmitters
- power levelling

## Bi-Directional Coupler Electrical Specifications

| FREQ.<br>(MHz) | COUPLING<br>(dB) |          | MAINLINE LOSS <sup>1</sup><br>(dB) |      | DIRECTIVITY<br>(dB) |      | VSWR<br>(:1) | POWER<br>INPUT<br>(W) |      |
|----------------|------------------|----------|------------------------------------|------|---------------------|------|--------------|-----------------------|------|
|                | Nom.             | Flatness | Typ.                               | Max. | Typ.                | Min. |              | L                     | MU   |
| $f_c$ - $f_u$  |                  |          |                                    |      |                     |      | Typ.         | Max.                  | Max. |
| 860-970        | 20.4±0.6         | ±0.6     | 0.1                                | 0.4  | 28                  | 20   | 1.1          | 10                    | 10   |

1. Mainline loss includes theoretical power loss at coupled port.

## Outline Drawing



## Outline Dimensions (inch)

| A     | B     | C     | D     | E    | F     | G    | H     |
|-------|-------|-------|-------|------|-------|------|-------|
| 1.25  | 1.25  | .75   | .63   | .38  | 1.000 | .125 | 1.000 |
| 31.75 | 31.75 | 19.05 | 16.00 | 9.65 | 25.40 | 3.18 | 25.40 |

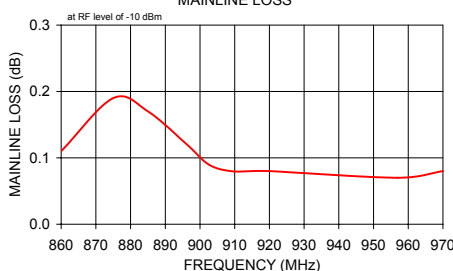
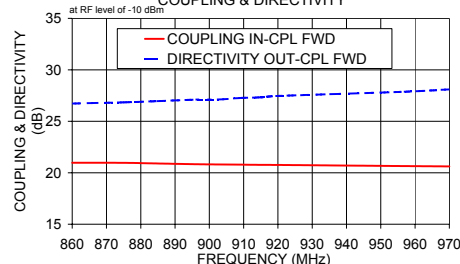
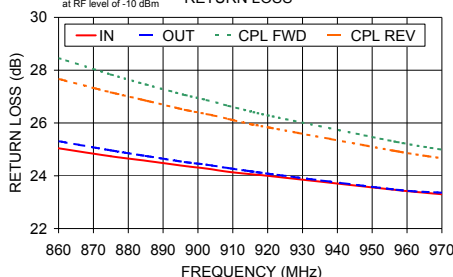
  

| J  | K  | L    | M     | N     | P     | Q    | wt    |
|----|----|------|-------|-------|-------|------|-------|
| -- | -- | .125 | 1.688 | 2.18  | .75   | .07  | grams |
| -- | -- | 3.18 | 42.88 | 55.37 | 19.05 | 1.78 | 75.0  |

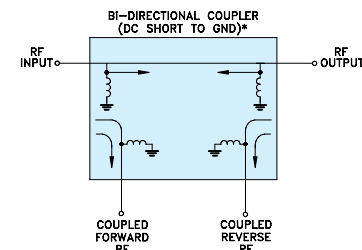
For option B with N-Type connectors, dimension "C" increases to 0.94 inches.

## Typical Performance Data

| Frequency<br>(MHz) | Mainline Loss<br>(dB) |            | Coupling<br>(dB) |             | Directivity<br>(dB) |       | Return Loss<br>(dB) |         |         |
|--------------------|-----------------------|------------|------------------|-------------|---------------------|-------|---------------------|---------|---------|
|                    | In-Out                | In-Cpl Fwd | Out-Cpl Rev      | Out-Cpl Fwd | In-Cpl Rev          | In    | Out                 | Cpl Fwd | Cpl Rev |
| 860.00             | 0.11                  | 20.97      | 21.06            | 26.72       | 22.08               | 25.04 | 25.31               | 28.46   | 27.67   |
| 875.00             | 0.19                  | 20.96      | 21.06            | 26.84       | 21.99               | 24.74 | 24.96               | 27.84   | 27.16   |
| 885.00             | 0.17                  | 20.90      | 21.01            | 26.96       | 21.92               | 24.57 | 24.75               | 27.46   | 26.85   |
| 896.25             | 0.12                  | 20.83      | 20.95            | 27.11       | 21.92               | 24.37 | 24.52               | 27.06   | 26.50   |
| 902.50             | 0.09                  | 20.81      | 20.93            | 27.12       | 21.84               | 24.27 | 24.42               | 26.87   | 26.34   |
| 908.75             | 0.08                  | 20.79      | 20.90            | 27.26       | 21.83               | 24.15 | 24.29               | 26.65   | 26.15   |
| 915.00             | 0.08                  | 20.77      | 20.89            | 27.33       | 21.78               | 24.06 | 24.17               | 26.44   | 25.96   |
| 920.00             | 0.08                  | 20.76      | 20.87            | 27.46       | 21.77               | 24.00 | 24.08               | 26.29   | 25.84   |
| 957.00             | 0.07                  | 20.65      | 20.76            | 27.87       | 21.87               | 23.46 | 23.47               | 25.28   | 24.93   |
| 970.00             | 0.08                  | 20.62      | 20.73            | 28.10       | 21.55               | 23.30 | 23.36               | 24.99   | 24.66   |

ZFBDC20-970HP  
MAINLINE LOSSZFBDC20-970HP  
COUPLING & DIRECTIVITYZFBDC20-970HP  
RETURN LOSS

## Electrical Schematic



\* ELECTRICAL SCHEMATIC IS FOR BI-DIRECTIONAL COUPLER WITH INTERNAL TRANSFORMER(S) THAT ROUTES DC FROM RF PORTS TO GROUND.

## Notes

- A. Performance and quality attributes and conditions not expressly stated in this specification document are intended to be excluded and do not form a part of this specification document.  
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