



## Isolated Combiners, CM-x8N series

4 x 4 Hybrid Coupler Matrix, Combiner & Splitter  
380-520, 698-960, 1710-2,170 & 1710-2700 MHz

- ◆ Connects 4 inputs to 4 outputs
- ◆ Up to 30 dB Isolation, Low VSWR
- ◆ Low Specified PIM, up to <-160 dBc
- ◆ Indoor and Outdoor Applications
- ◆ 100W Average Power Rating
- ◆ N connectors
- ◆ RoHS compliant



**CM-78N**  
1710 - 2170 MHz

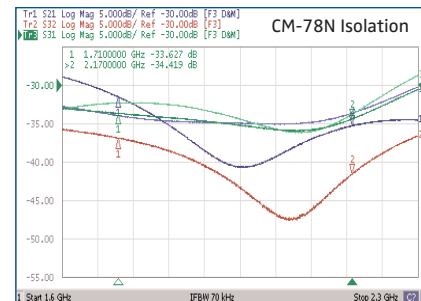
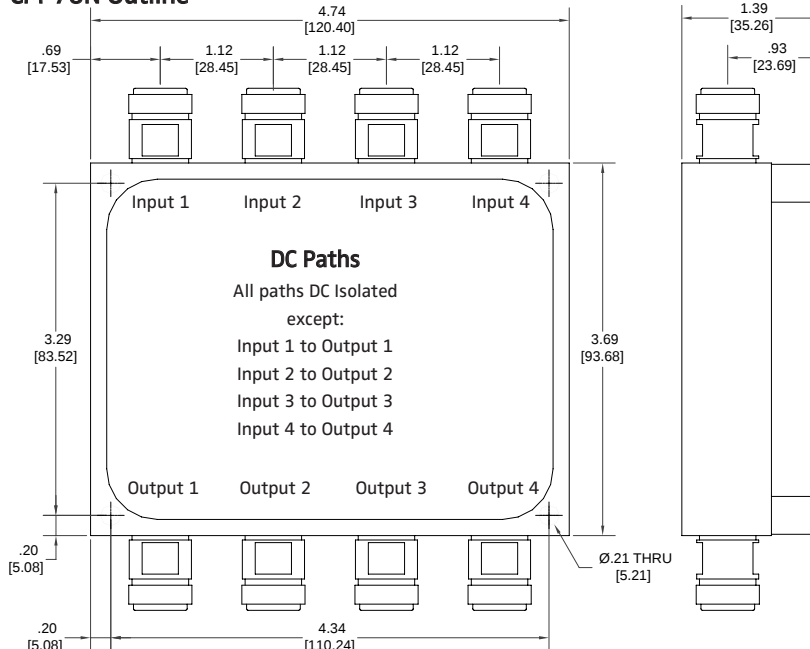
The 4x4 Hybrid is a matrix of four 3 dB Hybrid Couplers arranged so that signals applied to any of the four inputs will be split equally between the four outputs. This allows simple combining of multiple signals in the same wireless band to a common feeder cable, as might be required in a neutral host in-building distributed antenna system, or the decoupled combining of 4 transmitter or receiver signals equally to 4 antennas. Unused ports must be terminated externally in 50Ω, with an appropriate PIM performance. Note that the phase relationship of the outputs in these models is not consistent.

Special attention has been directed in these versions to maximize isolation in the wireless bands and minimize passive intermodulation (PIM). Units may be ordered moisture sealed for outside applications to meet IP67. (03/11)

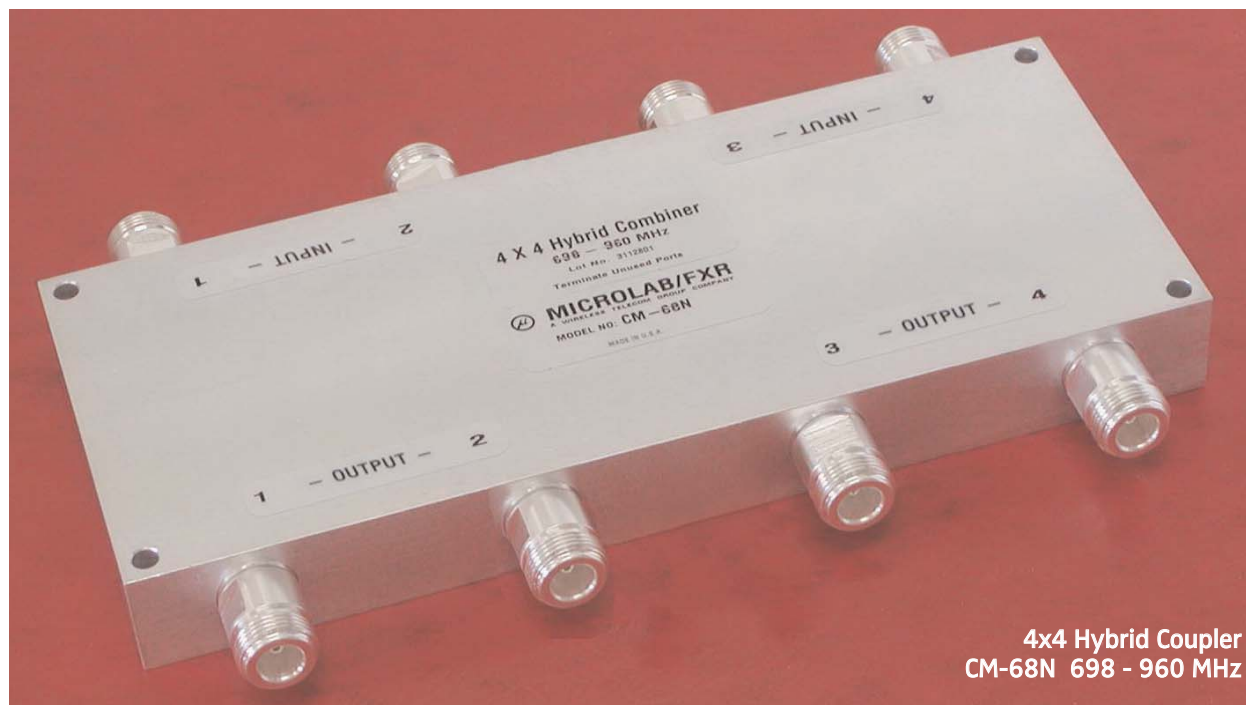
| Model Number | Frequency Range, MHz | Coupling dB | Input Isolation* typical | min   | Return Loss, dB | Power per Input Avg. | Peak | Weight, nom. lbs. (kg) |
|--------------|----------------------|-------------|--------------------------|-------|-----------------|----------------------|------|------------------------|
| CM-58N       | 1710 - 2700          | 6.2 ± 0.8   | 27 dB                    | 25 dB | >23 dB          | 100W                 | 3kW  | 4.9 (2.2)              |
| CM-68N       | 698 - 960            | 6.2 ± 0.6   | 32 dB                    | 28 dB | >23 dB          | 100W                 | 3kW  | 3.3 (1.5)              |
| CM-78N       | 1,710 - 2,170        | 6.2 ± 0.6   | 32 dB                    | 28 dB | >23 dB          | 100W                 | 3kW  | 1.8 (0.82)             |
| CM-88N       | 800 - 2700           | 6.2 ± 1.2   | 23 dB                    | 20 dB | >18 dB          | 100W                 | 3kW  | 4.9 (2.2)              |
| CM-98N       | 698 - 800            | 6.2 ± 1.5   |                          |       |                 |                      |      |                        |
|              | 380 - 520            | 6.1 ± 0.6   | 33 dB                    | 30 dB | >25 dB          | 100W                 | 3kW  | 3.5 (1.6)              |
|              | 350 - 380            | 6.0 ± 0.8   |                          |       |                 |                      |      |                        |

\*Requires all unused ports to be terminated with loads having return loss > 32dB

### CM-78N Outline

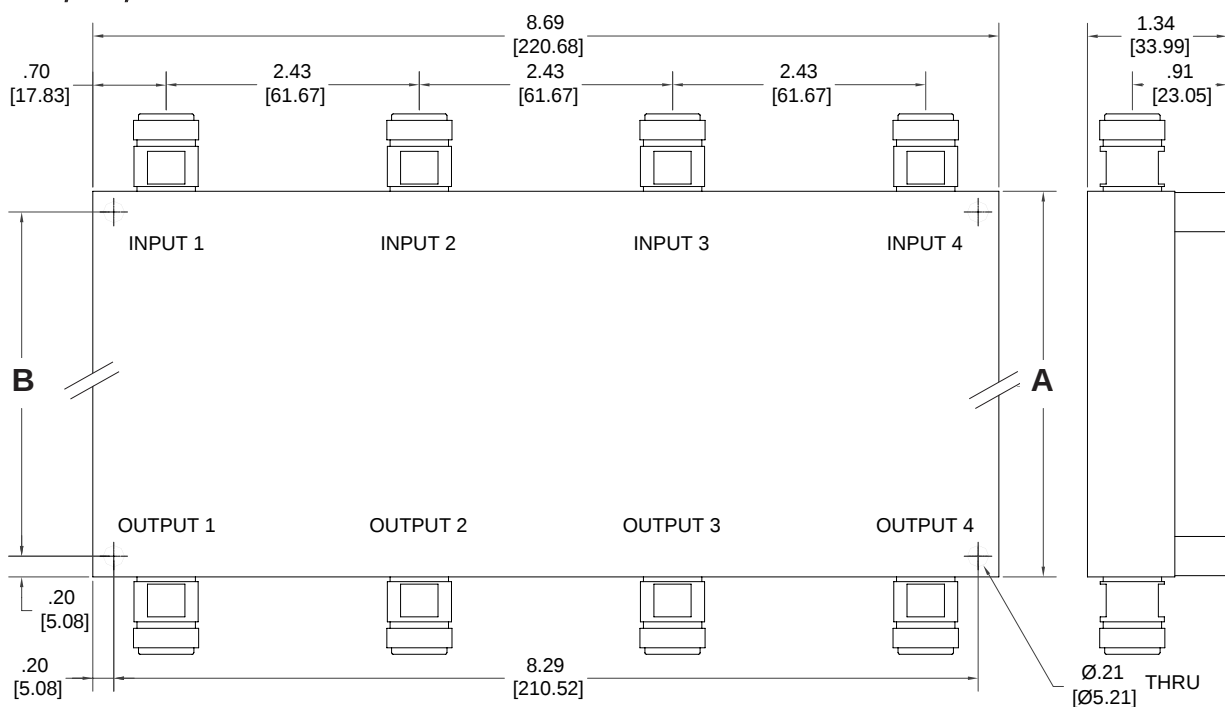


Impedance: 50Ω nominal  
Environment: -40 to +55°C, IP64 (IP67 to order)  
PIM, Intermod: <-160 dBc typical (two 20W tones) <-155 dBc\* min.  
Enclosure Finish: Passivated Al.  
Connectors Finish: Triplate, N (f)  
Mounting Wall: Bracket supplied  
Mast: Optional mast kit  
\*guaranteed <-160dBm to special order



**4x4 Hybrid Coupler  
CM-68N 698 - 960 MHz**

### CM-58, 68N, 88N & 98N Outline



#### DC Paths

All paths DC Isolated except:

- Input 1 to Output 1
- Input 2 to Output 2
- Input 3 to Output 3
- Input 4 to Output 4

| Model Number | Dimension A  | Dimension B  |
|--------------|--------------|--------------|
| CM-58N       | 4.94 (125.5) | 4.54 (115.3) |
| CM-68N       | 3.70 (93.93) | 3.30 (83.77) |
| CM-88N       | 4.99 (126.7) | 4.59 (116.6) |
| CM-98N       | 3.91 (99.31) | 3.51 (89.20) |