

Directional Couplers and Splitters



9-TFC/17A Series

Directional couplers and splitters divide trunk and feeder lines.

- 17-Amp current handling capacity.
- Excellent hum-modulation performance.
- 1/2-inch hard-line ports have extra length, creating a better seal between heat shrink and port.
- Easily configured to block/restore AC power and/or add fuses.
- 1 GHz capacity prepares your system for future expansion.

A directional coupler is an unequal power divider; a splitter is an equal power divider. Both have the abbreviation TFC (trunk/feeder coupler) in their model names because they split your network's trunk and feeder lines.

C-COR directional couplers and splitters both consist of a main circuit board and a housing. The housing's environmental coating protects the module from the most severe conditions. A wire mesh gasket maintains RF integrity, while a rubber gasket prevents weather from affecting the module's operation. A 90° rotating seizure mecha-

nism lets you install directional couplers and splitters easily in a variety of configurations.

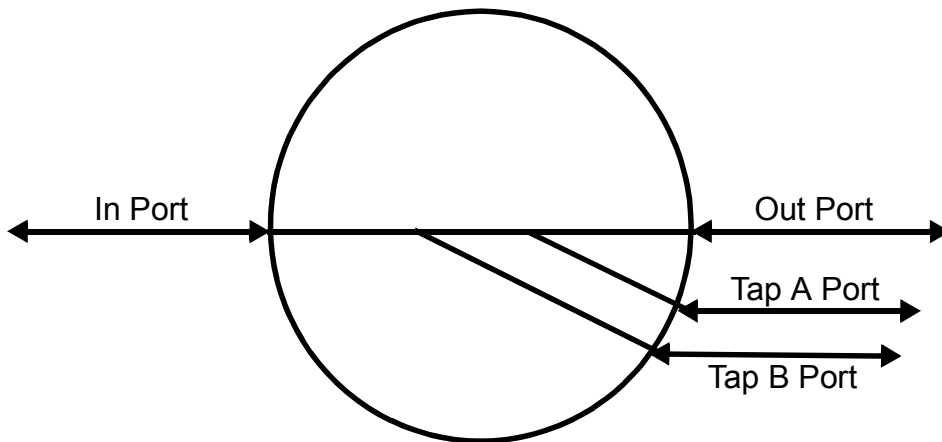
Feed-thru connectors can be used with cable up to 0.625-inch in diameter. Pin connectors, which enable you to accommodate larger diameters, also give better RF performance than feed-thru connection. All models have direct-entry ports with heat-shrink ridges and cable strip gauges.

All 9-TFC series directional couplers and splitters share the following features:

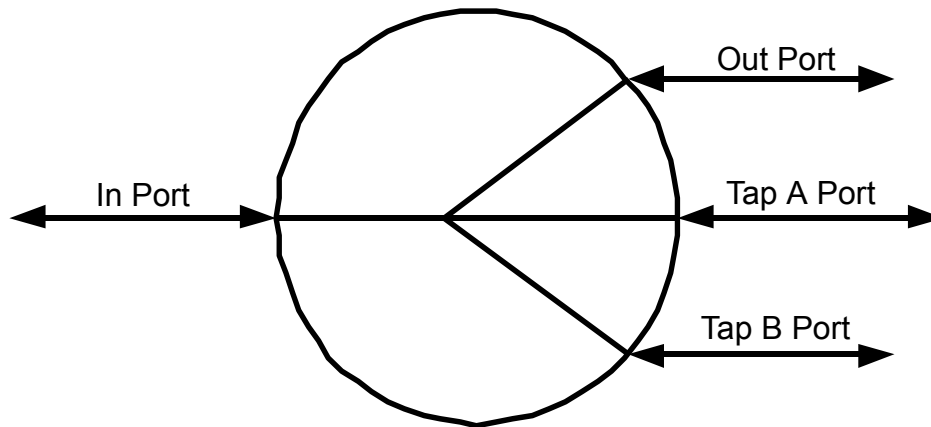
- electrical performance intact after carrying 25 Amps @ 60° C for 2 hours;
- weather gasket;
- RFI gasket;
- 2.5 kV surge resistance, which meets ANSI/IEEE C62.41-1991, Class B, 2500 V surge;
- backward compatibility so that faceplates fit into both 8-TFC and 9-TFC covers for easy upgrades to 1 GHz; and
- network power capacity of 90 VDC and VAC up to 60 Hz.

Directional Couplers and Splitters

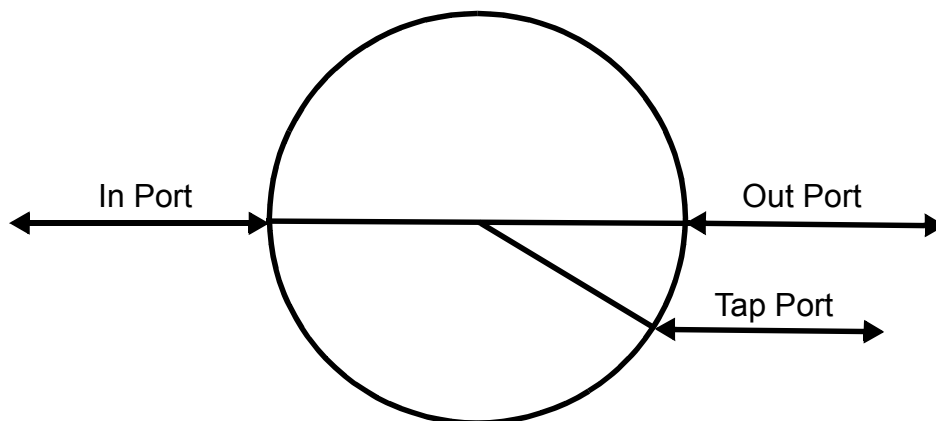
Functional Block Diagrams



9-TFC-488/17
3-way unbalanced
directional coupler



9-TFC-777/17
3-way balanced
directional coupler



9-TFC-8/17
8 dB directional coupler

9-TFC-12/17
12 dB directional coupler

9-TFC-16/17
16 dB directional coupler

Directional Couplers and Splitters

Worst Case Specifications

9-TFC/17A Series

	9-TFC-8/17A	9-TFC-12/17A	9-TFC-16/17A	Units
Bandwidth	5 to 1000	5 to 1000	5 to 1000	MHz
Tap Loss (maximum)				
5 to 900 MHz	8.3 ± 0.7	12.0 ± 0.7	16.0 ± 0.7	dB
900 to 1000 MHz	8.3 ± 1.0	12.0 ± 1.0	16.0 ± 1.0	dB
Insertion Loss (in-out, maximum)				
5 MHz	1.9	1.1	0.9	dB
30 MHz	1.8	1.0	0.9	dB
54 MHz	1.8	1.1	1.0	dB
112 MHz	1.9	1.1	1.0	dB
330 MHz	2.0	1.3	1.1	dB
450 MHz	2.1	1.4	1.2	dB
550 MHz	2.3	1.6	1.3	dB
600 MHz	2.5	1.7	1.4	dB
750 MHz	2.9	2.2	1.9	dB
862 MHz	3.1	2.4	2.0	dB
1000 MHz	3.5	2.7	2.3	dB
Flatness (maximum)				
5 to 1000 MHz	0.35	0.35	0.35	± dB
Tap-to-Out Isolation (minimum)				
5 to 29 MHz	18	20	20	dB
30 to 399 MHz	22	25	27	dB
400 to 599 MHz	21	24	26	dB
600 to 749 MHz	20	22	23	dB
750 to 899 MHz	18	19	20	dB
900 to 1000 MHz	18	18	20	dB
Return Loss In (minimum)				
5 to 29 MHz	16	16	16	dB
30 to 899 MHz	17	17	17	dB
900 to 1000 MHz	16	16	16	dB
Return Loss Out (minimum)				
5 to 29 MHz	16	16	16	dB
30 to 899 MHz	17	17	17	dB
900 to 1000 MHz	16	16	16	dB
Return Loss Tap (minimum)				
5 to 29 MHz	16	16	16	dB
30 to 899 MHz	17	17	17	dB
900 to 1000 MHz	16	16	16	dB

continued

Specifications are subject to change without notice.

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9-TFC/17A Series

	9-TFC-8/17A	9-TFC-12/17A	9-TFC-16/17A	Units
Bandwidth	5 to 1000	5 to 1000	5 to 1000	MHz
Hum Modulation @ 15 Amps (output/tap)				
5 to 19 MHz	-60/-60	-60/-60	-60/-60	dB
20 to 449 MHz	-70/-66	-70/-66	-70/-66	dB
450 to 749 MHz	-64/-64	-64/-64	-64/-64	dB
750 to 1000 MHz	-60/-60	-60/-60	-60/-60	dB
RFI Isolation (minimum)				
10 to 599 MHz	-100	-100	-100	dB
600 to 1000 MHz	-90	-90	-90	dB
Continuous Current Handling Capability (maximum)	17	17	17	Amps
Current Overload Survivability	25 Amps @ 60 °C for 2 hours			
Voltage Passing Capacity (maximum) DC, AC up to 60 Hz	90	90	90	V
Surge Rating	ANSI/IEEE C62.41-1991, Class B, 2500 V			

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Directional Couplers and Splitters

Nominal Specifications

9-TFC/17A Series

	9-TFC-8/17A	9-TFC-12/17A	9-TFC-16/17A	Units
Bandwidth	5 to 1000	5 to 1000	5 to 1000	MHz
Tap Loss				
5 to 19 MHz	8.5	12.5	16.6	dB
20 to 899 MHz	8.2	11.9	16.0	
900 to 1000 MHz	8.3	12.2	16.1	dB
Insertion Loss (in-out, maximum)				
5 MHz	1.7	0.9	0.7	dB
30 MHz	1.6	0.8	0.7	dB
54 MHz	1.5	0.8	0.6	dB
112 MHz	1.8	0.8	0.9	dB
330 MHz	1.8	1.0	0.9	dB
450 MHz	1.9	1.1	0.9	dB
550 MHz	2.0	1.1	0.9	dB
600 MHz	2.1	1.3	1.1	dB
750 MHz	2.4	1.5	1.2	dB
862 MHz	2.6	1.8	1.4	dB
1000 MHz	3.0	2.0	1.6	dB

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Directional Couplers and Splitters

Worst Case Specifications

9-TFC/17A Series

	9-TFC-4/17A	9-TFC-488/17A		9-TFC-777/17A	Units
Bandwidth	5 to 1000	5 to 1000		5 to 1000	MHz
Tap Loss (maximum)		In / High Out	In / Low Out		
5 MHz	3.9	4.1	7.5	6.1	dB
30 MHz	3.9	4.0	7.4	6.1	dB
54 MHz	4.1	4.1	7.4	6.1	dB
112 MHz	4.1	4.1	7.6	6.4	dB
330 MHz	4.1	4.1	7.6	6.4	dB
450 MHz	4.3	4.3	7.7	6.4	dB
550 MHz	4.4	4.6	7.9	6.5	dB
600 MHz	4.5	4.9	8.0	6.8	dB
750 MHz	4.8	5.2	8.5	7.3	dB
862 MHz	5.2	5.3	8.9	7.8	dB
1000 MHz	5.7	5.8	9.2	8.4	dB
Flatness (maximum)					
5 to 1000 MHz	0.35	0.35	0.35	0.35	± dB
Tap-to-Out Isolation (minimum)					
5 to 29 MHz	19	20	21	21	dB
30 to 399 MHz	26	27	27	21	dB
400 to 599 MHz	27	27	27	22	dB
600 to 749 MHz	25	25	25	20	dB
750 to 1000 MHz	20	20	20	18	dB
Return Loss In (minimum)					
5 to 5.9 MHz	16	15	16	16	
6 to 29 MHz	16	16	16	16	dB
30 to 899 MHz	17	17	17	17	dB
900 to 1000 MHz	16	16	16	16	dB
Return Loss Out (minimum)					
5 to 29 MHz	16	16	16	16	dB
30 to 899 MHz	17	17	17	17	dB
900 to 1000 MHz	16	16	16	16	dB
Return Loss Tap (minimum)					
5 to 29 MHz	16	16	16	16	dB
30 to 899 MHz	17	17	17	17	dB
900 to 1000 MHz	16	16	16	16	dB

[continued](#)

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Directional Couplers and Splitters

9-TFC/17A Series

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5 to 19 MHz	-60/-60	-60/-60	-60/-60	dB
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450 to 749 MHz	-64/-64	-64/-64	-64/-64	dB
750 to 1000 MHz	-60/-60	-60/-60	-60/-60	dB
RFI Isolation (minimum)				
10 to 599 MHz	-100	-100	-100	dB
600 to 1000 MHz	-90	-90	-90	dB
Continuous Current Handling Capability (maximum)	17	17	17	Amps
Current Overload Survivability	25 Amps @ 60 °C for 2 hours			
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Tap Loss (In/Out)		In / High Out	In / Low Out		
5 MHz	3.7	3.8	7.2	5.7	dB
30 MHz	3.5	3.7	7.1	5.5	dB
54 MHz	3.5	3.6	7.1	5.4	dB
112 MHz	3.6	3.7	7.2	5.5	dB
330 MHz	3.8	3.9	7.4	5.9	dB
400 MHz	3.8	3.9	7.4	5.9	dB
450 MHz	3.9	4.0	7.4	6.0	dB
550 MHz	4.0	4.1	7.5	6.0	dB
600 MHz	4.1	4.2	7.7	6.2	dB
750 MHz	4.3	4.5	8.0	6.5	dB
862 MHz	4.5	4.7	8.4	7.1	dB
1000 MHz	4.8	5.1	8.8	7.8	dB

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Specifications

9-TFC/17A Series

Mechanical	Units
Dimensions (height x width x depth) ^a	12.2 x 14.5 x 8.6 (4.8 x 5.7 x 3.4) cm (in.)
Weight	0.64 (1.4) kg (lbs.)
Connector Type ^b	Standard CATV KS entry connectors for cable up to 0.625-inch diameter
Pin Length	4.1 (1.6) cm (in.)

Specifications are subject to change without notice.

a. Height dimension includes plug; depth dimension includes half-inch F-ports and strand clamp/bolt in closed position.

b. Pin connector (0.067-inch diameter) is recommended for best RF performance.



Directional Couplers and Splitters

Ordering Information

 To order, call your sales representative. See the Introduction section for a list of [C-COR Representatives](#).

9-TFC/17A Series

9 - TFC - ___ / 17A

9000 Series

(1 GHz bandwidth)

Trunk/Feeder Coupler

Directional Couplers

Tap Leg Loss: 8, 12, or 16 dB

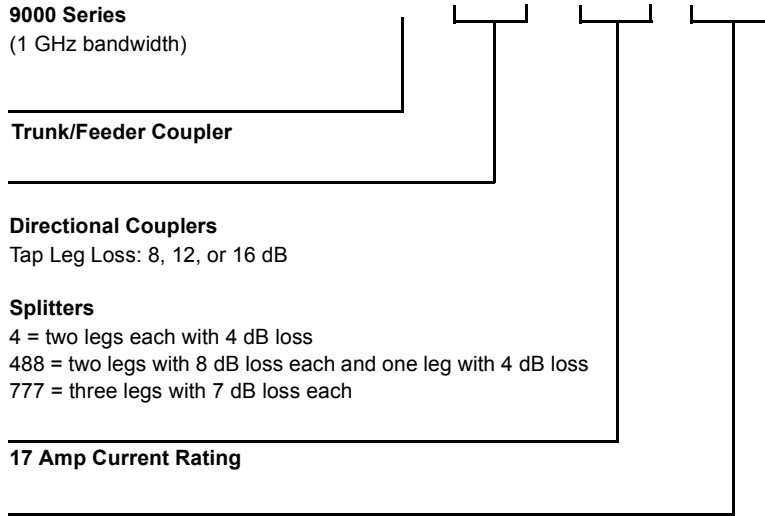
Splitters

4 = two legs each with 4 dB loss

488 = two legs with 8 dB loss each and one leg with 4 dB loss

777 = three legs with 7 dB loss each

17 Amp Current Rating



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