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Microwave Electronic Components of America



BIAS TEES
DC BLOCKS
ATTENUATORS
TERMINATIONS
3dB HYBRID COUPLERS
DIRECTIONAL COUPLERS
CIRCULATORS & ISOLATORS
POWER DIVIDER/COMBINERS
ADAPTERS & CABLE ASSEMBLIESS

Rugged and Reliable RF/Microwave Components Since 1961
Made in USA

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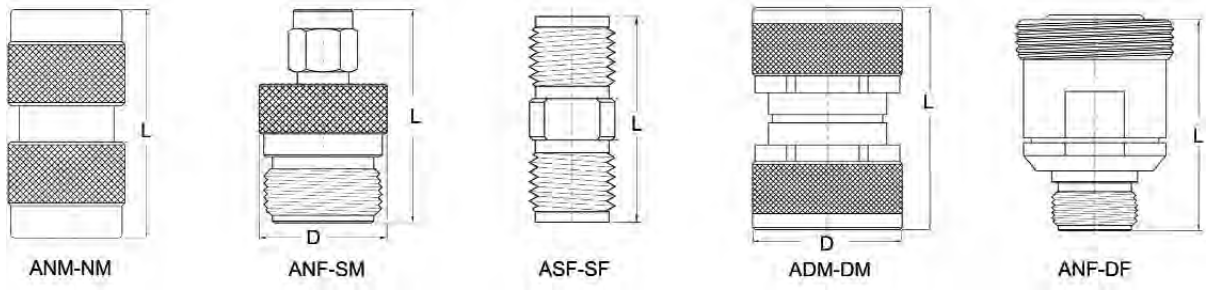
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Between Series Adapters

NEW!



MECA now carries a full-range of the most common between series adapters (bullets) to help simplify the connectivity of your projects. These rugged and reliable adapters are available off-the-shelf and complement the large variety of products we sell every day. When connectivity issues arise in your projects, you now have the convenience of ordering between series adapters from MECA.

ELECTRICAL SPECIFICATIONS				
Catalog Number	**Connetor**	**Frequency (GHz)**	**Length (in)**	**Diameter (in)**
ANM-NM	N-Male to N-Male	DC - 12.4	1.600	.820
ANF-NF	N-Female to N-Female	DC - 12.4	1.500	.641
ANM-SF	N-Male to SMA-Female	DC - 12.4	1.114	.827
ANM-SM	N-Male to SMA-Male	DC - 12.4	1.268	.827
ANF-SM	N-Female to SMA-Male	DC - 12.4	1.115	.669
ANF-SF	N-Female to SMA-Female	DC - 12.4	1.059	.669
ASM-SM	SMA-Male to SMA-Male	DC - 12.4	.874	.360
ASF-SF	SMA-Female to SMA-Female	DC - 12.4	.591	.246
ADM-DM	DIN-Male to DIN-Male	DC - 7.5	1.850	1.270
ADF-DF	DIN-Female to DIN-Female	DC - 7.5	1.370	1.370
ANM-DM	N-Male to DIN-Male	DC - 7.5	1.858	1.270
ANM-DF	N-Male to DIN-Female	DC - 7.5	1.813	1.142
ANF-DM	N-Female to DIN-Male	DC - 7.5	1.571	1.270
ANF-DF	N-Female to DIN-Female	DC - 7.5	1.526	1.142

MECHANICAL SPECIFICATIONS:
ASM-SM & ASF-SF: Furnished with nickel plated brass housing and gold contact pin
ANM-NM & ANF-NF: Furnished with silver plated (Low PIM) brass housing and contact pin
ADF-DF, ADM-DM & ADF-DM: Furnished with silver plated (Low PIM) housing and contact pin
ANM-DM, ANM-DF, ANF-DM & ANF-DM: Furnished with silver plated (Low PIM) housing and contact pin
ANM-SF, ANM-SM, ANF-SM & ANF-SF: Furnished with nickel plated brass housing and gold contact pin

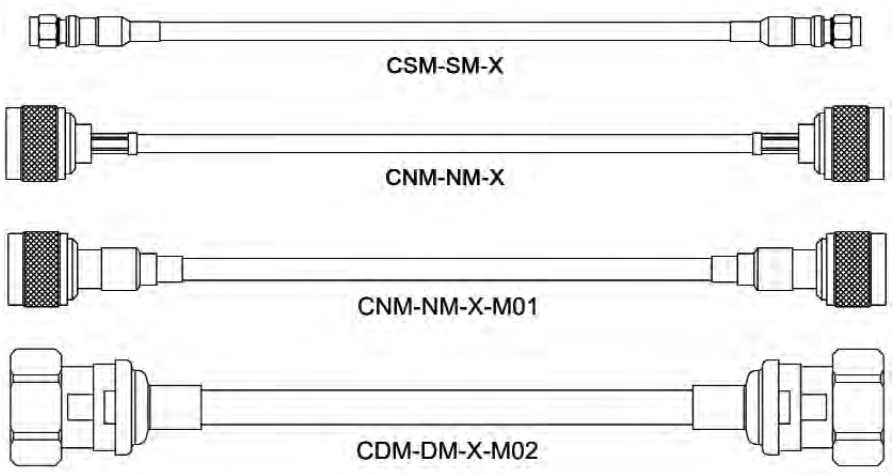
Notes:
1. Impedance: 50 Ohms
2. Temperature Range: -65 to +85 deg C
3. Some adapters may not be manufactured domestically.

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Jumper Cable Assemblies

NEW!



Need cables with that? MECA now carries an assortment of rugged Jumper Cables to help simplify the connectivity of your projects. Available in three of the most commonly used cable types in **RG142**, **LMR240** and **LMR400** with standard length of 3', 6' and 10' (center conductor to center conductor) with customized lengths available in just 2-3 weeks after receipt of your order. Delivery from STOCK in **SMA**, **N**, **7/16 DIN**, **BNC** and **TNC** connector styles. All cables assemblies are **100% pull tested and swept** prior to shipment to ensure they exceed your expectations. When connectivity issues arise in your projects, you now have the convenience of ordering jumper cables from MECA.

Catalog Number	Connetor	Cable Type	Atten/ft (dB)				Power (W) (@ 1 GHz)		Minimum Bend Radius (install)
			0.4	0.9	2.0	5.8	Avg.	Peak	
CSM-SM-X	SMA-Male to SMA-Male	RG 142	.082	.125	.224	.488	200	500	0.50 in
CSM-SM-X-M01	SMA-Male to SMA-Male	LMR 240	.053	.076	.115	.204	250	5.6K	0.75 in
CNM-NM-X	N-Male to N-Male	RG 142	.082	.125	.224	.488	200	500	1.00 in
CNM-NM-X-M01	N-Male to N-Male	LMR 240	.053	.076	.115	.204	250	5.6K	0.75 in
CNM-NM-X-M02	N-Male to N-Male	LMR 400	.027	.039	.060	.108	550	16K	0.50 in
CDM-DM-X-M01	DIN-Male to DIN-Male	LMR 240	.053	.076	.115	.204	250	5.6K	0.75 in
CDM-DM-X-M02	DIN-Male to DIN-Male	LMR 400	.027	.039	.060	.108	550	16K	1.00 in
CBM-BM-X	BNC-Male to BNC-Male	RG 142	.082	.125	.224	.488	200	500	0.50 in
CTM-TM-X	TNC-Male to TNC-Male	RG 142	.082	.125	22.4	.488	200	500	0.50 in

Available in 36", 72" and 120" lengths from STOCK. To order or specify, please insert length (in inches) in place of X.
Example: **CSM-SM-72** for **72"** (6ft) of **RG142** cable with **SMA-Male Connectors** on both ends.

MECHANICAL SPECIFICATIONS:

RG 142: Belden, Brown FEP Jacket, .037 solid center conductor, .195 Nominal OD, Mil Spec MIL-C-17G or equivalent.

LMR 240: Times Microwave, Black PE Jacket, 0.056 center conductor, .240 Nominal OD, Standard Outdoor Cable

LMR 400: Times Microwave, Black PE Jacket, 0.108 solid center conductor, .405 Nominal OD, Standard Outdoor Cable

Notes:
1. Impedance: 50 Ohms
2. Temperature Range: -65 to +85 deg C
3. Manufacturer's data sheets available by request

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FIXED ATTENUATOR OVERVIEW				
Power1	**Connector**	**Frequency (GHz)**	**Catalog Number**	**Page**
2 watts	SMA - M/F	Hz - 4.0	662-dB-1	6
2 watts	SMA - M/F	Hz - 18.0	665-dB-1	7
2 watts	N-Type - M/F	Hz - 4.0	612-dB-1	8
2 watts	N-Type - M/F	Hz - 6.0	605-dB-1	9
2 watts	N-Type - M/F	Hz - 18.0	605-dB-1F18	9
2 watts	N-Type - M/F	Hz - 2.5	615-dB-1	10
2 watts	BNC - M/F	Hz - 4.0	612-dB-2	11
2 watts	BNC - M/F 75 ohm	Hz - 2.0	612-dB-2-75	11
2 watts	TNC - M/F	Hz - 4.0	612-dB-3	12
2 watts	Reverse Polarity TNC	Hz - 4.0	612-dB-3RP	13
2 watts	QMA - M/F	Hz - 4.0	663-dB-1	14
5 watts	SMA - M/F	Hz - 6.0	602-dB-1	15
5 watts	SMA - M/F	Hz - 18.0	602-dB-1F18	15
5 watts	N-Type - M/F	Hz - 6.0	603-dB-1	16
5 watts	N Type - M/F	Hz - 18.0	603-dB-1F18	16
5 watts	DIN - M/F	Hz - 2.5	603-dB-11	17
5 watts	DIN - M/F	Hz - 6.0	603-dB-11F6	17
10 watts	SMA - M/F	Hz - 6.0	604-dB-1	18
10 watts	SMA - M/F	Hz - 18.0	604-dB-1F18	18
10 watts	N-Type - M/F	Hz - 4.0	606-dB-1F4	19
10 watts	DIN - M/F	Hz - 2.5	606-dB-11	20
10 watts	DIN - M/F	Hz - 6.0	606-dB-11F6	20
20 watts	SMA - M/F	Hz - 6.0	631-dB-1	21
20 watts	SMA - M/F	Hz - 18.0	631-dB-1F18	21
20 watts	N-Type - M/F	Hz - 4.0	630-dB-1F4	22
50 watts	N-Type - M/F	Hz - 4.0	650-dB-1F4	23
100 watts	N-Type - M/F	Hz - 3.0	690-dB-1	24
150 watts	N-Type - M/F	Hz - 3.0	697-dB-1	25

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECA offers a wide selection of attenuators designed to exceed commercial specifications. Standard attenuation values of 3, 6, 10, 20 and 30 dB are available from STOCK! Need a special value? Many of our attenuators are available in all values from 0 - 40 dB in 1 dB increments. Custom models with different attenuation values, power ratings, frequency ranges, connector styles and configurations are also readily available in quantity.

Input Power Attenuated													
dB	1	2	3	4	5	6	7	8	9	10	20	30	40
%	20.57	36.90	49.88	60.19	68.38	74.88	80.05	84.15	87.41	90.00	99.00	99.90	99.99

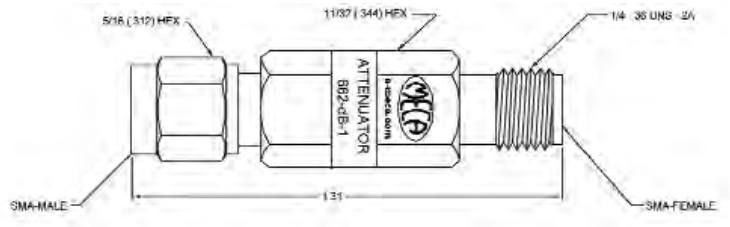
How To Order:

Insert attenuation value in place of dB

EXAMPLE: 662-10-3 for 10 dB.

2 Watts, SMA-M/F, Hz - 4.0 GHz: 662-dB-1





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
2	500	Hz - 2.0 2.0 - 4.0	1.15:1 1.25:1	3, 6, 10, 20 dB	± 0.6 dB ± 0.8 dB
		Hz - 2.0 2.0 - 4.0	1.25:1 1.35:1	30 dB [4]	± 1.0 dB ± 1.5 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 662-10-1 for 10 dB

Our **662-dB-1** series SMA attenuators have an average power rating of 2 watts (500W peak) and cover all commercial wireless bands from Hz - 4.0 GHz. Available in attenuation values from **1 - 30 dB in 1 dB increments** with delivery from STOCK – 2 weeks ARO. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy Plated
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Albaloy Plate
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	0.32

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

EXAMPLE: 662-10-1 for 10 dB

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. All other values from 1 - 30 dB follow 30dB specs
5. 662-dB-1 available from STOCK in 3, 6, 10, 20 & 30 dB values
6. Other values from 1 - 30 dB in 1 dB increments available from STOCK - 2 weeks ARO
7. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

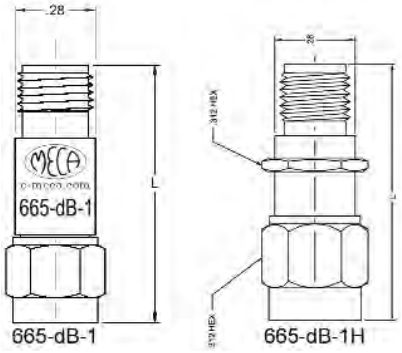
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2 Watts, SMA-M/F, Hz- 18.0 GHz: 665-dB-1/665-dB-1H





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
2	250	Hz - 4.0 4.0 - 8.0 8.0 - 12.4 12.4 - 18.0	1.15:1 1.20:1 1.25:1 1.35:1	0 - 6 dB 7 - 20 dB 21 - 30 dB 40 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB ± 1.50 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 665-10-1 for 10 dB

Our **665-dB-1** and **665-dB-1H** SMA attenuators have an average power rating of 2 watts (250W peak) and cover all commercial wireless bands from Hz - 18.0 GHz. Available in attenuation values from **0 - 30 dB in 1 dB increments** with delivery from STOCK – 2 weeks ARO. **665-dB-1H** models feature a **HEX body.**

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Passivated Stainless Steel
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Stainless Steel
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Length (L)	.86 (1-12 dB) / .99 (13-30, 40 dB)
Weight (oz)	0.16 (1-12 dB) / 0.18 (13-30, 40 dB)

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

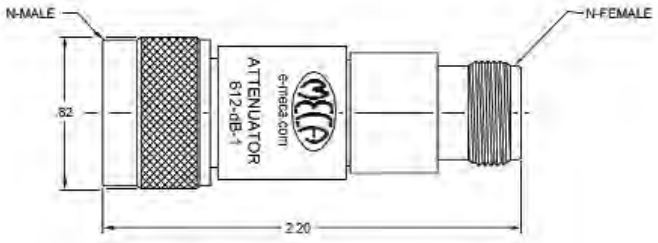
EXAMPLE: 665-10-1 for 10 dB

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. All other values from 1 - 30 dB follow 30dB specs
5. 665-dB-1 available from STOCK in 3, 6, 10, 20 & 30 dB values
6. Other values from 1 - 30 dB in 1 dB increments available from STOCK - 2 weeks ARO
7. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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2 Watts, N Type-M/F, Hz - 4.0 GHz: 612-dB-1





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
2	1000	Hz - 2.2 2.0 - 4.0	1.15:1 1.25:1	3, 6, 10, 20 dB	± 0.6 dB ± 0.8 dB
		Hz - 2.2 2.0 - 4.0	1.25:1 1.35:1	30 dB [4]	± 1.0 dB ± 1.5 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 612-10-1 for 10 dB

Our **612-dB-1** series is an N-Type attenuator with an average power rating of 2 watts (1kW peak) and frequency range from Hz - 4.0 GHz . Available in attenuation values from **1 - 30 dB in 1 dB increments** with delivery from STOCK – 2 weeks ARO. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy Plated
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Albaloy Plate
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	3.14

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

EXAMPLE: 612-10-1 for 10 dB

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. All other values from 1 - 30 dB follow 30dB specs
5. 612-dB-1 available from STOCK in 1 - 30 dB in 1 dB increments
6. Other values from 1 - 30 dB in 1 dB increments available from STOCK - 2 weeks ARO
7. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

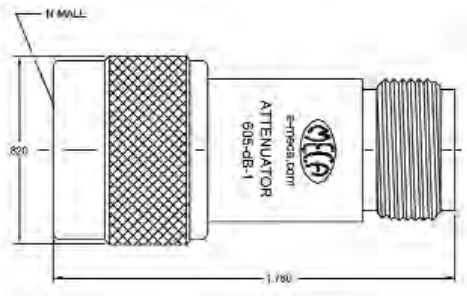
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2 Watts, N Type-M/F, Hz - 6.0 GHz: 605-dB-1





605-dB-1 ELECTRICAL SPECIFICATIONS (6.0 GHz)					
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance
2	250	Hz - 4.0 4.0 - 6.0	1.15:1 1.20:1	3, 6 dB 10, 20 dB 30 dB 40 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB ± 1.00 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 605-10-1 for 10 dB

2 Watts, N-Type-M/F, Hz - 18.0 GHz: 605-dB-1F18

605-dB-1F18 ELECTRICAL SPECIFICATIONS (18.0 GHz)						
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance	
					Hz - 6.0 GHz	6.0 - 18.0 GHz
2	250	Hz - 4.0 4.0 - 8.0 8.0 - 12.4 12.4 - 18.0	1.15:1 1.20:1 1.25:1 1.30:1 1.40:1	3, 6 dB 10, 20 dB 30, 40 dB	± 0.30 dB ± 0.50 dB ± 0.80 dB	± 0.50 dB ± 0.75 dB ± 1.00 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 605-10-1F18 for 10 dB

Our **605-dB-1** series is an N-Type attenuator with average power rating of 2 watts (250W peak) and frequency range from Hz - 6.0 GHz. The **605-dB-1F18** series has an extended frequency range to 18.0 GHz. Both models available in attenuation values of 3, 6, 10, 20, 30 & 40 dB with delivery from STOCK – 2 weeks ARO. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Passivated/Nickel Brass
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Stainless Steel
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	2.08

RoHS Compliant: Yes

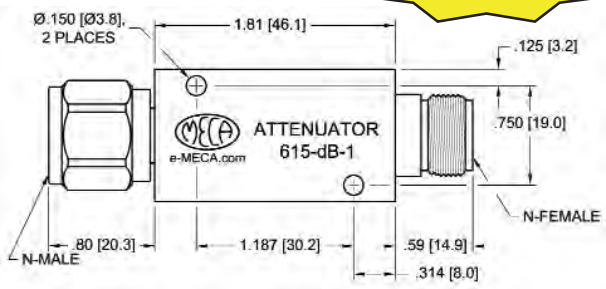
Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. 605-dB-1 and 605-dB-1F18 available from STOCK in 3, 6, 10, 20, 30 & 40 dB values
5. Non-standard attenuation values available. Contact a MECA Applications Engineer for details
6. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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2 Watts, N-Type-M/F, Hz - 2.0 GHz: 40-90 dB, High Attenuation

NEW!





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
2	1000	Hz - 2.0	1.25:1	40 - 60 dB 70 - 90 dB	± 1.50 dB ± 2.00 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 615-80-1 for 80 dB

Our new high attenuation, **615 Series** N Male/Female fixed attenuators cover all commercial wireless bands from Hz - 2.0 GHz in attenuation values from **40 - 90 dB**. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy Plated
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Aluminum
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
O-Ring	Silicone Rubber
Weight (oz)	4.10

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

EXAMPLE: 615-80-1 for 80 dB

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Indoor / Outdoor use (IP65)
4. Units are not capable of passing Direct Current (DC)
5. Values from 40-90 dB in 1 dB increments available.
6. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

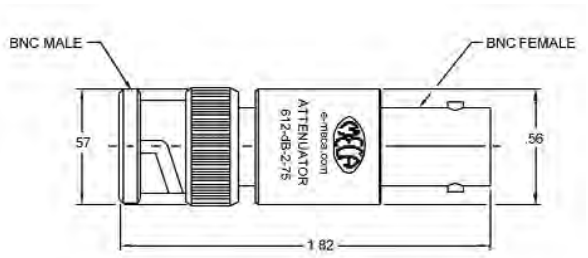
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2 Watts, BNC-M/F, Hz - 4.0 GHz: 612-dB-2 (50 ohm)





612-dB-2 ELECTRICAL SPECIFICATIONS (50 Ohm, 4.0 GHz)					
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance
2	1000	Hz - 2.2 2.0 - 4.0	1.25:1 1.45:1	3, 6, 10, 20 dB	± 0.75 dB ± 1.25 dB
		Hz - 2.2 2.0 - 4.0	1.25:1 1.45:1	30 dB [2]	± 1.25 dB ± 1.50 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 612-10-2 for 10 dB

2 Watts, BNC-M/F, Hz - 2.0 GHz: 612-dB-2-75 (75 Ohm)

612-dB-2-75 ELECTRICAL SPECIFICATIONS (75 Ohm, 2.0 GHz)					
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance
2	1000	Hz - 2.0	1.25:1	3, 6 dB 10, 20 dB 30 dB	± 0.50 dB ± 0.75 dB ± 1.25 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 612-10-2-75 for 10 dB

Our **612-dB-2** series is a **50 Ohm** BNC attenuator with an average power rating of 2 watts (1kW peak) and frequency range from Hz - 4.0 GHz. Available in attenuation values from **1 - 30 dB in 1 dB increments** with delivery from STOCK – 2 weeks ARO. Made in USA.

Our **612-dB-2-75** series is a **75 Ohm** BNC attenuator with an average power rating of 2 watts (1kW peak) and frequency range from Hz - 2.0 GHz. Available in attenuation values of 3, 6, 10, 20 & 30 dB. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy Plated
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Albaloy Plate
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	0.90

RoHS Compliant: Yes

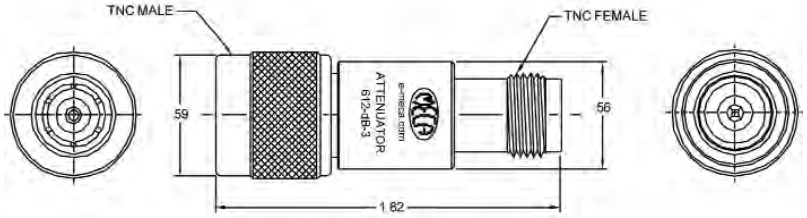
Notes:
1. Units are bi-directional
2. All other values from 1 - 30 dB follow 30dB specs
3. Units are not capable of passing Direct Current (DC)
4. 612-dB-2 50 ohm nominal, 612-dB-2-75 75 ohm nominal.
5. 612-dB-2 available from STOCK in 3, 6, 10, 20 & 30 dB values.
6. Other values from 1 - 30 dB in 1 dB increments available from STOCK - 2 weeks ARO
7. Non-standard 75 Ohm attenuation values available. Contact a MECA Applications Engineer for details
8. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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2 Watts, TNC-M/F, Hz - 4.0 GHz: 612-dB-3





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
2	1000	Hz - 2.2 2.0 - 4.0	1.25:1 1.45:1	3, 6, 10, 20 dB	± 0.75 dB ± 1.25 dB
		Hz - 2.2 2.0 - 4.0	1.25:1 1.45:1	30 dB [4]	± 1.25 dB ± 1.50 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 612-10-3 for 10 dB

Our **612-dB-3** series is a TNC attenuator with an average power rating of 2 watts (1kW peak) and frequency range from Hz - 4.0 GHz. Available in attenuation values from **1 - 30 dB in 1 dB incremetns** with delivery from STOCK – 2 weeks ARO. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy Plated
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Albaloy Plate
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	1.15

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

EXAMPLE: 612-10-3 for 10 dB

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. All other values from 1 - 30 dB follow 30 dB specs
5. 612-dB-3 available from STOCK in 3, 6, 10, 20 & 30 dB values
6. Other values from 1 - 30 dB in 1 dB increments available from STOCK - 2 weeks ARO
7. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

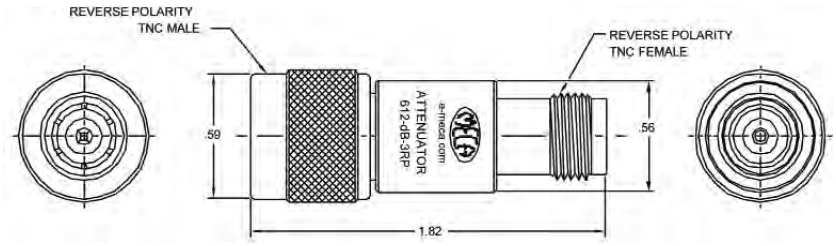
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2 Watts, Reverse Polarity TNC, Hz - 4.0 GHz: 612-dB-3RP





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
2	1000	Hz - 2.2 2.0 - 4.0	1.25:1 1.45:1	3, 6, 10, 20 dB	± 0.75 dB ± 1.25 dB
		Hz - 2.2 2.0 - 4.0	1.25:1 1.45:1	30 dB [4]	± 1.25 dB ± 1.50 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 612-10-3RP for 10 dB

MECA's **612-dB-3RP** attenuators are designed specifically for high performance Wi-Fi and Wireless LAN systems and cover all commercial wireless bands from Hz - 4.0 GHz. Available from STOCK in 3, 6, 10, 20 & 30 dB. Other values from **1 - 30 dB in 1 dB increments** available from STOCK - 2 weeks ARO. Made in USA.

Reverse polarity TNC (RP-TNC) is a variation of the standard TNC connector which reverses the polarity of the interface to female contact pins into the male connectors and male contact pins into the female connectors. RP-TNC connectors are widely used by Wi-Fi and Wireless LAN equipment manufacturers to comply with FCC regulations to prevent consumers from connecting gain antennas to these systems.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy Plated
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Albaloy Plate
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	1.15

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

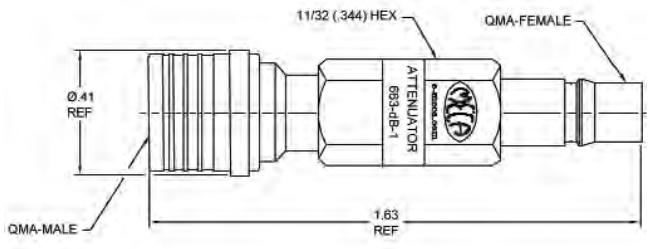
EXAMPLE: 612-10-3RP for 10 dB

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. All other values from 1 - 30 dB follow 30 dB specs
5. 612-dB-3RP available from STOCK in 3, 6, 10, 20 & 30 dB models
6. Other values from 1 - 30 dB in 1 dB increments available from STOCK - 2 weeks ARO
7. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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2 Watts, QMA-M/F, Hz - 4.0 GHz: 663-dB-1





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
2	500	Hz - 2.0 2.0 - 4.0	1.15:1 1.25:1	3, 6, 10, 20 dB	± 0.60 dB ± 0.80 dB
		Hz - 2.0 2.0 - 4.0	1.25:1 1.35:1	30 dB [4]	± 1.00 dB ± 1.50 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 663-10-1 for 10 dB

Our new RoHS compliant **663-dB-1** series QMA male/female fixed attenuators cover all commercial wireless bands from Hz - 4.0 GHz making them ideal for next generation BTS field upgrades. Available in attenuation values from **1 - 30 dB in 1 dB increments** STOCK - 2 weeks ARO. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy Plated
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Albaloy Plate
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	0.41

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

EXAMPLE: 663-10-1 for 10 dB

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. All other values from 1 - 30 dB follow 30 dB specs
5. 663-dB-1 available from STOCK in 3, 6, 10, 20 & 30 dB values
6. Other values from 1 - 30 dB in 1 dB increments available from STOCK - 2 weeks ARO
7. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

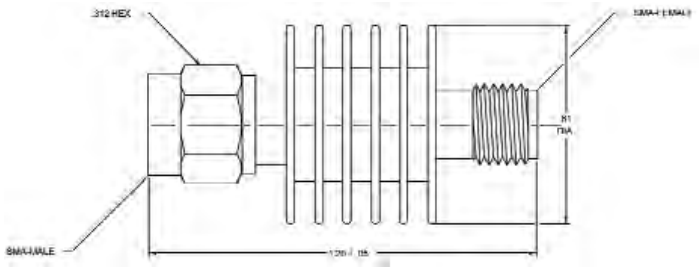
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5 Watts, SMA-M/F, Hz - 6.0 GHz: 602-dB-1





602-dB-1 ELECTRICAL SPECIFICATIONS (Hz - 6.0 GHz)					
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance
5	125	Hz - 4.0 4.0 - 6.0	1.15:1 1.20:1	3, 6 dB 10, 20 dB 30 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 602-10-1 for 10 dB

5 Watts, SMA-M/F, Hz - 18.0 GHz: 602-dB-1F18

602-dB-1F18 ELECTRICAL SPECIFICATIONS (Hz - 18.0 GHz)						
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance	
					Hz - 6.0 GHz	6.0 - 18.0 GHz
5	125	Hz - 4.0 4.0 - 6.0 6.0 - 8.0 8.0 - 12.4 12.4 - 18.0	1.15:1 1.20:1 1.25:1 1.30:1 1.40:1	3, 6 dB 10, 20 dB 30 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB	± 0.50 dB ± 0.75 dB ± 1.00 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 602-10-1F18 for 10 dB

Our **602-dB-1** is a SMA attenuator with an average power rating of 5 watts (125W peak) and cover all commercial wireless bands from Hz - 6.0 GHz. The **602-dB-1F18** has an extended frequency range to 18.0 GHz. Both models available in attenuation values of 3, 6, 10, 20 & 30 dB with delivery from STOCK – 2 weeks ARO. Made in USA.

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MECHANICAL SPECIFICATIONS	
Connectors	Brass Nickel Plated
Male Pin	Beryllium Copper Gold Plate
Female Pin	Brass Gold Plate
Housing	Aluminum, Black Anodize
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	0.30

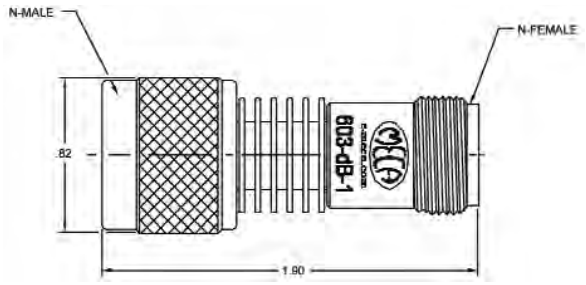
RoHS Compliant: Yes

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. 602-dB-1 and 602-dB-1F18 available from STOCK in 3, 6, 10, 20 & 30 dB values
5. Non-standard attenuation values available. Contact a MECA Applications Engineer for details
6. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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5 Watts, N Type-M/F, Hz - 6.0 GHz: 603-dB-1





603-dB-1 ELECTRICAL SPECIFICATIONS (Hz - 6.0 GHz)					
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance
5	125	Hz - 4.0 4.0 - 6.0	1.15:1 1.20:1	3, 6 dB 10, 20 dB 30 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 603-10-1 for 10 dB

5 Watts, N Type-M/F Hz - 18.0 GHz: 603-dB-1F18

603-dB-1F18 ELECTRICAL SPECIFICATIONS (Hz - 18.0 GHz)						
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance	
					Hz - 6.0 GHz	6.0 - 18.0 GHz
5	125	Hz - 4.0 4.0 - 6.0 6.0 - 8.0 8.0 - 12.4 12.4 - 18.0	1.15:1 1.20:1 1.25:1 1.30:1 1.40:1	3, 6 dB 10, 20 dB 30 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB	± 0.50 dB ± 0.75 dB ± 1.00 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 603-10-1F18 for 10 dB

Our **603-dB-1** series is an N-Type attenuator with an average power rating of 5 watts (125W peak) and frequency range from Hz - 6.0 GHz. The **603-dB-1F18** has an extended frequency range to 18.0 GHz. Both available in attenuation values of 3, 6, 10, 20 & 30 dB with delivery from STOCK – 2 weeks ARO. Made in USA.

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MECHANICAL SPECIFICATIONS	
Connectors	Passivated Stainless Steel
Male Pin	Beryllium Copper Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Aluminum, Black Anodize
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	1.70

RoHS Compliant: Yes

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. 603-dB-1 and 603-dB-1F18 available from STOCK in 3, 6, 10, 20 & 30 dB models
5. Non-standard attenuation values available. Contact a MECA Applications Engineer for details
6. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

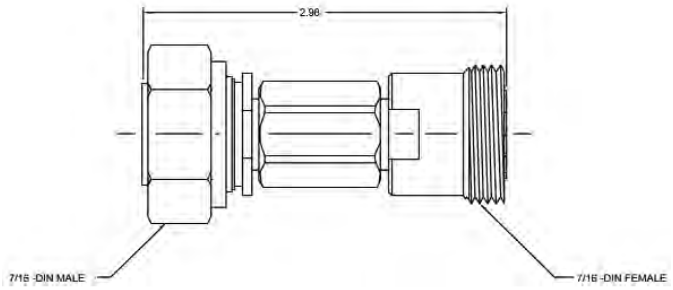
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5 Watts, 7/16 DIN-M/F, Hz - 2.5 GHz: 603-dB-11





603-dB-11 ELECTRICAL SPECIFICATIONS (Hz - 2.5 GHz)					
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance
5	250	Hz - 2.5	1.20:1	3, 6 dB 10, 20 dB 30 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 603-10-11 for 10 dB

5 Watts, 7/16 DIN-M/F, Hz - 6.0 GHz: 603-dB-11F6

603-dB-11 ELECTRICAL SPECIFICATIONS (Hz - 6.0 GHz)						
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance	
					Hz - 2.0 GHz	2.0 - 6.0 GHz
5	250	Hz - 2.0 2.0 - 4.0 4.0 - 6.0	1.20:1 1.25:1 1.50:1	3, 6 dB 10, 20 dB 30 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB	± 0.50 dB ± 0.75 dB ± 1.00 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 603-10-11F6 for 10 dB

Our **603-dB-11** series is a 7/16 DIN attenuator with an average power rating of 5 watts (250W peak) and frequency range from Hz - 2.5 GHz. The **603-dB-11F6** has an extended frequency range to 6 GHz . Available in attenuation values of 3, 6, 10, 20 & 30 dB with delivery from STOCK – 2 weeks ARO. **Ideal for basestation, in-building, tunnel or repeater applications**. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Silver Plate
Male Pin	Brass Silver Plate
Female Pin	Brass Silver Plate
Housing	Brass Silver Plate
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	7.48

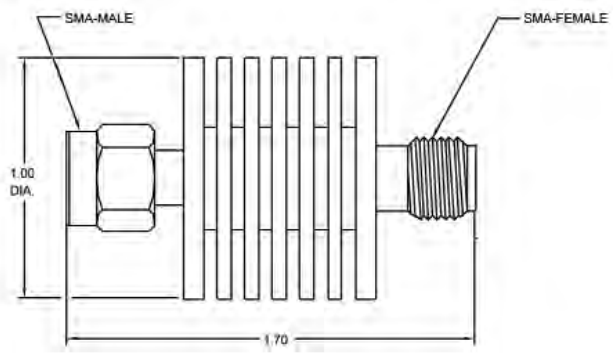
RoHS Compliant: Yes

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. Available from STOCK - 2 weeks in 3, 6, 10, 20 & 30 dB values
5. Non-standard attenuation values available. Contact a MECA Applications Engineer for details
6. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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10 Watts, SMA-M/F, Hz - 6.0 GHz: 604-dB-1





604-dB-1 ELECTRICAL SPECIFICATIONS (Hz - 6.0 GHz)					
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance
10	500	Hz - 6.0	1.20:1	3, 6 dB 10, 20 dB 30 dB	± 0.30 dB ± 0.50 dB ± 0.70 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 604-10-1 for 10 dB

10 Watts, SMA-M/F, Hz - 18.0 GHz: 604-dB-1F18

604-dB-1F18 ELECTRICAL SPECIFICATIONS (Hz - 18.0 GHz)						
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance	
					Hz - 6.0 GHz	6.0 - 18.0 GHz
10	500	Hz - 6.0 6.0 - 12.4 12.4 - 18.0	1.20:1 1.35:1 1.45:1	3, 6 dB 10, 20 dB 30, 40 dB	± 0.30 dB ± 0.50 dB ± 0.70 dB	± 0.60 dB ± 0.80 dB ± 1.20 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 604-10-1F18 for 10 dB

Our **604-dB-1** is a SMA attenuator with an average power rating of 10 watts (500W peak) and covers all commercial wireless bands from Hz - 6.0 GHz. The **604-dB-1F18** has an extended frequency range to 18.0 GHz. Both available in attenuation values of 3, 6, 10, 20 & 30 dB with delivery from STOCK – 2 weeks ARO. Made in USA.

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MECHANICAL SPECIFICATIONS	
Connectors	Stainless Steel
Male Pin	Beryllium Copper Gold Plate
Female Pin	Brass Gold Plate
Housing	Aluminum, Black Anodize
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	0.83

RoHS Compliant: Yes

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. 604-dB-1 and 604-dB-1F18 available from STOCK - 2 weeks in 3, 6, 10, 20 & 30 dB models
5. Non-standard attenuation values available. Contact a MECA Applications Engineer for details
6. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

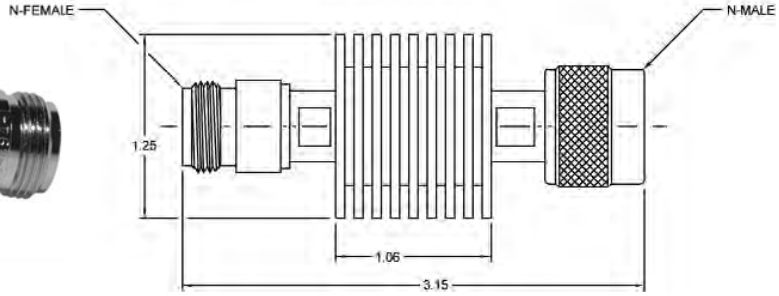
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10 Watts, N Type-M/F, Hz - 4.0 GHz: 606-dB-1F4





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
10	1000	Hz - 1.0	1.15:1	3, 6, 10 & 20 dB 30 dB	± 0.25 dB ± 0.50 dB
		1.0 - 4.0	1.35:1	3, 6, 10 & 20 dB 30 dB	± 0.50 dB ± 0.75 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 606-10-1F4 for 10 dB

Our **606-dB-1F4** series is an N-Type attenuator with an average power rating of 10 watts (1kW peak) and frequency ranges from Hz - 4.0 GHz. Available in attenuation values of 3, 6, 10, 20 & 30 dB with delivery from STOCK – 2 weeks ARO. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab a pplications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Nickel Plated
Male Pin	Beryllium Copper Gold Plate
Female Pin	Brass Gold Plate
Housing	Aluminum, Black Anodize
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	3.73

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

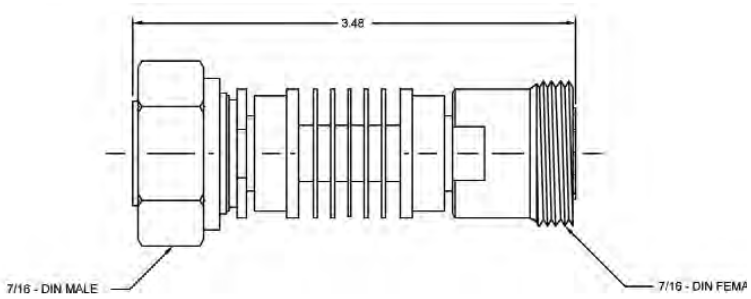
EXAMPLE: 606-10-1F4 for 10 dB

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. Available from STOCK - 2 weeks in 3, 6, 10, 20 & 30 dB models
5. Non-standard attenuation values available. Contact a MECA Applications Engineer for details
6. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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10 Watts, 7/16 DIN-M/F, Hz - 2.5 GHz: 606-dB-11





606-dB-11 ELECTRICAL SPECIFICATIONS (Hz - 2.5 GHz)					
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance
10	2000	Hz - 2.5	1.20:1	3, 6 dB 10, 20 dB 30 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 606-10-11 for 10 dB

10 Watts, 7/16 DIN-M/F, Hz - 6.0 GHz: 606-dB-11F6

606-dB-11F6 ELECTRICAL SPECIFICATIONS (Hz - 6.0 GHz)						
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance	
					Hz - 2.0 GHz	2.0 - 6.0 GHz
10	2000	Hz - 2.0 2.0 - 4.0 4.0 - 6.0	1.20:1 1.25:1 1.50:1	3, 6 dB 10, 20 dB 30 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB	± 0.50 dB ± 0.75 dB ± 1.00 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 606-10-11F6 for 10 dB

Our **606-dB-11** series is an 7/16 DIN attenuator with an average power rating of 10 watts (2kW peak) and frequency range from Hz - 2.5 GHz. **606-dB-11F6** has an extended frequency range to 6 GHz. Available in attenuation values of 3, 6, 10, 20 & 30 dB with delivery from STOCK – 2 weeks ARO. **Ideal for basestations, in-building, tunnel or repeater applications**. Made in USA.

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MECHANICAL SPECIFICATIONS	
Connectors	Brass Silver Plated
Male Pin	Beryllium Copper Gold Plate
Female Pin	Brass Gold Plate
Housing	Aluminum, Black Anodize
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	7.17

RoHS Compliant: Yes

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. Available from STOCK - 2 weeks in 3, 6, 10, 20 & 30 dB models
5. Non-standard attenuation values available. Contact a MECA Applications Engineer for details
6. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

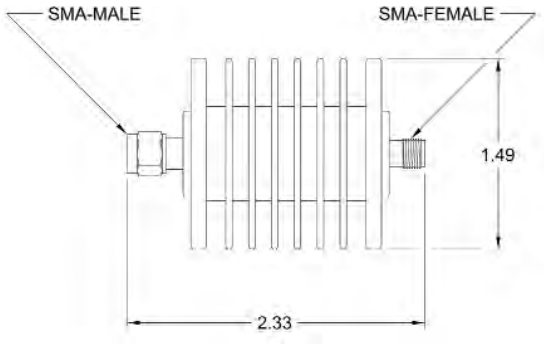
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20 Watts, SMA-M/F, Hz - 6.0 GHz: 631-dB-1





631-dB-1 ELECTRICAL SPECIFICATIONS (Hz - 6.0 GHz)					
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance
20	500	Hz - 6.0	1.20:1	3, 6 dB 10, 20 dB 30 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 631-10-1 for 10 dB

20 Watts, SMA-M/F, DC - 18.0 GHz: 631-dB-1F18

631-dB-1F18 ELECTRICAL SPECIFICATIONS (Hz - 18.0 GHz)							
Average Power (Watts)	Peak Power (Watts)	Frequency (GHz)	VSWR (Max)	Attenuation Value (dB)	Attenuation Tolerance		
					Hz - 6.0 GHz	6.0 - 12.4 GHz	12.4 - 18.0 GHz
20	500	Hz - 6.0 6.0 - 12.4 12.4 - 18.0	1.20:1 1.35:1 1.45:1	3, 6 dB 10 dB 20, 30 dB	± 0.30 dB ± 0.50 dB ± 0.75 dB	± 0.75 dB ± 1.00 dB ± 1.25 dB	± 1.00 dB ± 1.50 dB ± 2.50 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 631-10-1F18 for 10 dB

Our **631-dB-1** is a SMA attenuator with an average power rating of 20 watts (500W peak) and covers all commercial wireless bands from Hz - 6.0 GHz. The **631-dB-1F18** has an extended frequency range to 18.0 GHz. Both available in attenuation values of 3, 6, 10, 20 & 30 dB with delivery from STOCK – 2 weeks ARO. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Stainless Steel
Male Pin	Beryllium Copper Gold Plate
Female Pin	Brass Gold Plate
Housing	Aluminum, Black Anodize
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	2.61

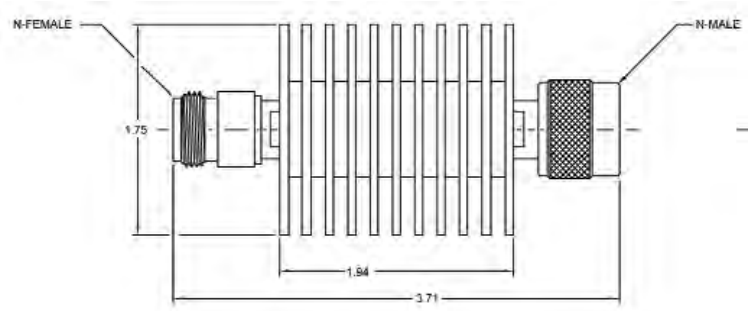
RoHS Compliant: Yes

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. 631-dB-1 and 631-dB-1F18 available from STOCK - 2 weeks in 3, 6, 10, 20 & 30 dB values
5. Non-standard attenuation values available. Contact a MECA Applications Engineer for details
6. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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20 Watts, N Type-M/F, Hz - 4.0 GHz: 630-dB-1F4





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
20	1000	Hz - 1.0	1.15:1	3, 6, 10 & 20 dB 30 dB	± 0.25 dB ± 0.50 dB
		1.0 - 4.0	1.35:1	3, 6, 10 & 20 dB 30 dB	± 0.50 dB ± 0.75 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 630-10-1 for 10 dB

Our **630-dB-1** series is an N-Type attenuator with an average power rating of 20 watts (1kW peak) and frequency ranges from Hz - 4.0 GHz. Available in attenuation values of 3, 6, 10, 20 & 30 dB with delivery from STOCK – 2 weeks ARO. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Nickel Plated
Male Pin	Beryllium Copper Gold Plate
Female Pin	Brass Gold Plate
Housing	Aluminum, Black Anodize
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	4.95

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

EXAMPLE: 630-10-1F4 for 10 dB

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. Available from STOCK 2 weeks in 3, 6, 10, 20 & 30 dB models
5. Non-standard attenuation values available. Contact a MECA Applications Engineer for details
6. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

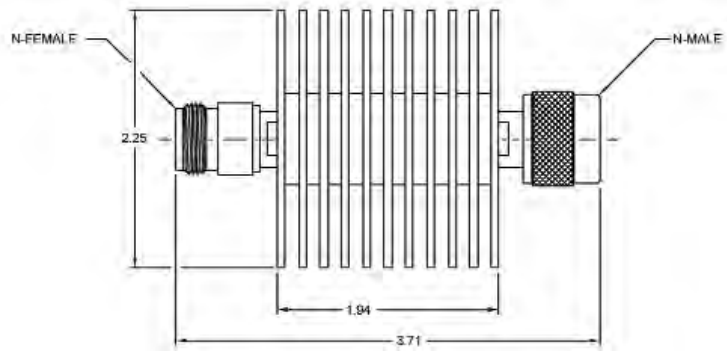
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50 watts, N Type-M/F, Hz - 4.0 GHz: 650-dB-1F4





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
50	1000	Hz - 1.0	1.15:1	3, 6, 10 & 20 dB 30 dB	± 0.25 dB ± 0.50 dB
		1.0 - 4.0	1.35:1	3, 6, 10 & 20 dB 30 dB	± 0.50 dB ± 0.75 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 650-10-1F4 for 10 dB

Our **650-dB-1** series is an N-Type attenuator with an average power rating of 50 watts (1kW peak) and frequency ranges from Hz - 4.0 GHz. Available in attenuation values of 3, 6, 10, 20 & 30 dB with delivery from STOCK – 2 weeks ARO. Made in USA.

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MECHANICAL SPECIFICATIONS	
Connectors	Brass Nickel Plated
Male Pin	Beryllium Copper Gold Plate
Female Pin	Brass Gold Plate
Housing	Aluminum, Black Anodize
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	6.29

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

EXAMPLE: 650-10-1F4 for 10 dB

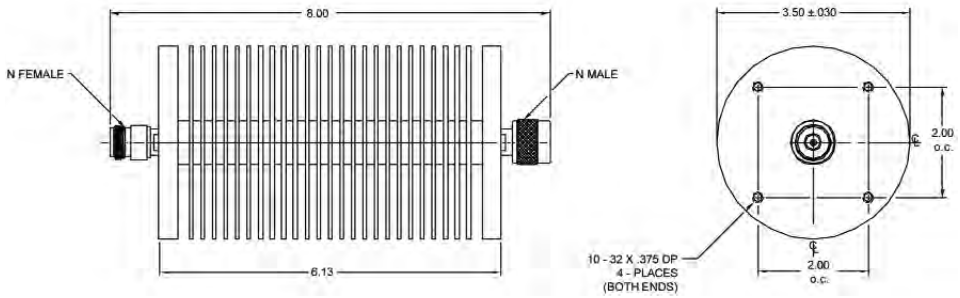
Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Units are not capable of passing Direct Current (DC)
4. Available from STOCK 2 weeks in 3, 6, 10, 20 & 30 dB models
5. Non-standard attenuation values available. Contact a MECA Applications Engineer for details
6. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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100 Watts, N Type-M/F, Hz - 3.0 GHz: 690-dB-1





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
100	1000	Hz - 2.0 2.0 - 3.0	1.20:1 1.30:1	3, 6, & 10 dB 20, 30 dB	± 0.30 dB ± 0.50 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 690-10-1 for 10 dB

Our **690-dB-1** series is an N-Type attenuator with an average power rating of 100 watts (1kW peak) and frequency ranges from Hz - 3.0 GHz. Available in attenuation values of 3, 6, 10, 20 & 30 dB with delivery from STOCK – 4 weeks ARO. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Nickel Plated
Male Pin	Beryllium Copper Gold Plate
Female Pin	Brass Gold Plate
Housing	Aluminum, Black Anodize
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (lbs)	2.7

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

EXAMPLE: 690-10-1 for 10 dB

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Available in 3, 6, 10, 20 & 30 dB values
4. Units are not capable of passing Direct Current (DC)
5. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

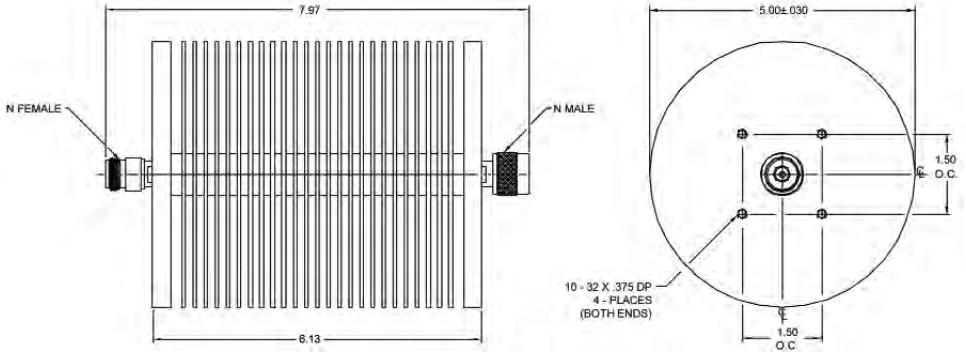
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150 Watts, N Type-M/F, Hz - 3.0 GHz: 697-dB-1





ELECTRICAL SPECIFICATIONS					
Average Power (Watts)	**Peak Power (Watts)**	**Frequency (GHz)**	**VSWR (Max)**	**Attenuation Value (dB)**	**Attenuation Tolerance**
150	1000	Hz - 2.0 2.0 - 3.0	1.30:1 1.40:1	3, 6, & 10 dB 20, 30 dB	± 0.30 dB ± 0.50 dB

To order or specify, please insert attenuation value in place of dB. EXAMPLE: 697-10-1 for 10 dB

Our **697-dB-1** series is an N-Type attenuator with an average power rating of 150 watts (1kW peak) and frequency ranges from Hz - 3.0 GHz. Available in attenuation values of 3, 6, 10, 20 & 30 dB with delivery from STOCK – 4 weeks ARO. Made in USA.

Attenuators are used in a wide variety of applications and can satisfy almost any requirement where a reduction in power is needed. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance. out transmission lines that otherwise would have unequal signal levels.

MECHANICAL SPECIFICATIONS	
Connectors	Brass Nickel Plated
Male Pin	Beryllium Copper Gold Plate
Female Pin	Brass Gold Plate
Housing	Aluminum, Black Anodize
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (lbs)	4.07

RoHS Compliant: Yes

How To Order:

Insert attenuation value in place of dB

EXAMPLE: 697-10-1 for 10 dB

Notes:
1. Units are bi-directional
2. 50 ohms nominal impedance
3. Available in 3, 6, 10, 20 & 30 dB values
4. Units are not capable of passing Direct Current (DC)
5. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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BIAS TEES OVERVIEW				
Connector	**Power**	**Frequency (GHz)**	**Catalog Number**	**Page**
N-Type	300 watts	0.5 - 2.5	200N Series	27
SMA	300 watts	0.5 - 2.5	200S Series	28
BNC	300 watts	0.5 - 2.5	200B Series	29
TNC	300 watts	0.5 - 2.5	200T Series	30
7/16 DIN	300 watts	0.5 - 2.5	200D Series	31

RoHS compliant, **Bias Tees** cover wireless band applications from 0.500 – 2.500 GHz. **Our unique modular design offers maximum flexibility regardless of connector configuration at any port!** Available in 7/16 DIN, SMA, N, BNC & TNC configurations with RF power ratings to 300 watts (3 kW peak) and max DC levels of 100 VDC/7 Amps making them ideal for remote powering of bi-directional amplifiers (BDAs), repeaters and tower top amplifiers (TTAs) by BTS control modules. STOCK - 2 weeks ARO. All models weatherproof (IP65). Made in USA.







DC Connector (1)

Mainline Connector (M)



Mainline Connector (F)

200N-MF-1

Mainline Connector Configuration

Typical Catalog Number: 200N-MF-1 ← DC Connector

Mainline Connector Type

Mainline Connector Type
N = N-Type
S = SMA
B = BNC
T = TNC
D = 7/16 DIN

Connector Configuration
MF = Male, Female
FM = Female, Male
MM = Male, Male
FF = Female, Female

DC Connector
1 = N-Type
2 = SMA
3 = BNC
4 = TNC
5 = Solder Post
6 = SMB

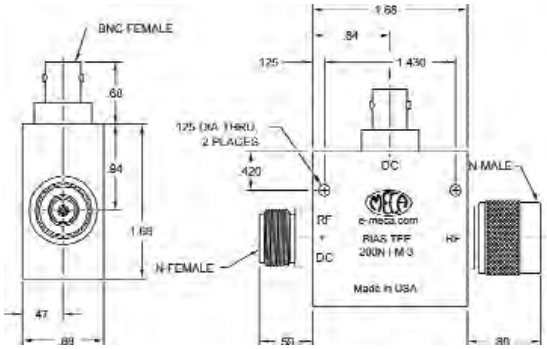
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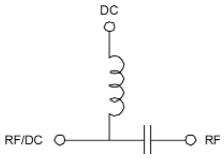
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Bias Tees, N-Type, 0.5 - 2.5 GHz: 200N Series





Catalog Number	Freq. (GHz)	Connector Configuration			Insertion Loss		Isolation RF to DC		VSWR Input/Output	
		RF/DC	RF	DC	Typ	Max	Typ	Min	Typ	Max
200N-MF-1	0.5 - 2.5	N-Male	N-Female	N-Female	0.25	0.50	30	25	1.25:1	1.40:1
200N-MF-2	0.5 - 2.5	N-Male	N-Female	SMA-Female	0.25	0.50	30	25	1.25:1	1.40:1
200N-MF-3	0.5 - 2.5	N-Male	N-Female	BNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200N-MF-4	0.5 - 2.5	N-Male	N-Female	TNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200N-MF-5	0.5 - 2.5	N-Male	N-Female	Solder Post	0.25	0.50	30	25	1.25:1	1.40:1
200N-MF-6	0.5 - 2.5	N-Male	N-Female	SMB-Male	0.25	0.50	30	25	1.25:1	1.40:1
200N-FM-1	0.5 - 2.5	N-Female	N-Male	N-Female	0.25	0.50	30	25	1.25:1	1.40:1
200N-FM-2	0.5 - 2.5	N-Female	N-Male	SMA-Female	0.25	0.50	30	25	1.25:1	1.40:1
200N-FM-3	0.5 - 2.5	N-Female	N-Male	BNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200N-FM-4	0.5 - 2.5	N-Female	N-Male	TNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200N-FM-5	0.5 - 2.5	N-Female	N-Male	Solder Post	0.25	0.50	30	25	1.25:1	1.40:1
200N-FM-6	0.5 - 2.5	N-Female	N-Male	SMB Male	0.25	0.50	30	25	1.25:1	1.40:1



RoHS compliant, Bias Tees cover wireless band applications from 0.500 – 2.500 GHz. **Our unique modular design offers maximum flexibility regardless of connector configuration at any port!** Available in 7/16 DIN, SMA, N, BNC & TNC configurations with RF power ratings to 300 watts (3 kW peak) and max DC levels of 100 VDC/7 Amps. Ideal for remote powering of bi-directional amplifiers (BDAs), repeaters and tower top amplifiers (TTAs) by BTS control modules. STOCK - 2 weeks ARO. All models weatherproof (IP65). Made in USA.

MECHANICAL SPECIFICATIONS	
Connectors	Brass, Albaloy
Pins	N-Male: Brass, Gold Plate N-Female: Beryllium Copper, Gold Plate SMA-Female:Beryllium Copper, Gold Plate BNC-Female: Beryllium Copper, Gold Plate TNC-Female: Beryllium Copper, Gold Plate SMB-Male: Beryllium Copper, Gold Plate Solder Post: Beryllium Copper, Silver
Housing	Aluminum, Iridite
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
O-Ring	Silicone Rubber
Weight (oz)	6.4

RoHS Compliant: Yes [2]

Notes:
1. Units are bi-directional
2. Solder post (-5) models are not RoHS compliant
3. Available in alternate frequency ranges & connector configurations
4. All connector configurations weatherproof to IP65 rating except models with solder posts
5. BNC-Male, TNC-Male and SMA-Male connector configurations are not currently available

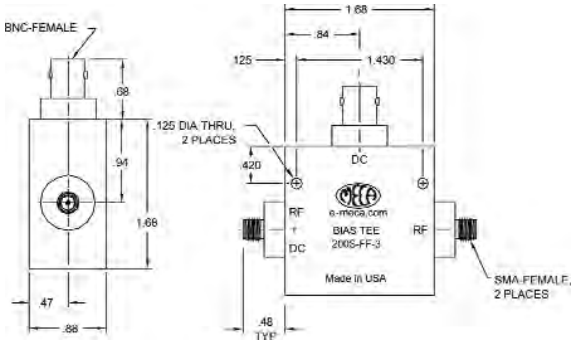
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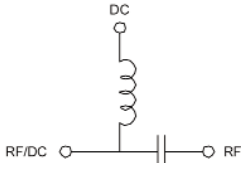
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Bias Tees, SMA, 0.5 - 2.5 GHz: 200S Series





Catalog Number	Freq. (GHz)	Connector Configuration			Insertion Loss		Isolation RF to DC		VSWR Input/Output	
		RF/DC	RF	DC	Typ	Max	Typ	Min	Typ	Max
200S-FF-1	0.5 - 2.5	SMA-Female	SMA-Female	N-Female	0.25	0.50	30	25	1.25:1	1.40:1
200S-FF-2	0.5 - 2.5	SMA-Female	SMA-Female	SMA-Female	0.25	0.50	30	25	1.25:1	1.40:1
200S-FF-3	0.5 - 2.5	SMA-Female	SMA-Female	BNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200S-FF-4	0.5 - 2.5	SMA-Female	SMA-Female	TNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200S-FF-5	0.5 - 2.5	SMA-Female	SMA-Female	Solder Post	0.25	0.50	30	25	1.25:1	1.40:1
200S-FF-6	0.5 - 2.5	SMA-Female	SMA-Female	SMB Male	0.25	0.50	30	25	1.25:1	1.40:1



RoHS compliant, Bias Tees cover wireless band applications from 0.500 – 2.500 GHz. **Our unique modular design offers maximum flexibility regardless of connector configuration at any port!** Available in 7/16 DIN, SMA, N, BNC & TNC configurations with RF power ratings to 300 watts (3 kW peak) and max DC levels of 100 VDC/7 Amps. Ideal for remote powering of bi-directional amplifiers (BDAs), repeaters and tower top amplifiers (TTAs) by BTS control modules. STOCK - 2 weeks ARO. All models weatherproof (IP65). Made in USA.

MECHANICAL SPECIFICATIONS	
Connectors	Brass, Albaloy
Pins	N-Male: Brass, Gold Plate N-Female: Beryllium Copper, Gold Plate SMA-Female:Beryllium Copper, Gold Plate BNC-Female: Beryllium Copper, Gold Plate TNC-Female: Beryllium Copper, Gold Plate SMB-Male: Beryllium Copper, Gold Plate Solder Post: Beryllium Copper, Silver
Housing	Aluminum, Iridite
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
O-Ring	Silicone Rubber
Weight (oz)	6.4

RoHS Compliant: Yes [2]

Notes:
1. Units are bi-directional
2. Solder post (-5) models are not RoHS compliant
3. Available in alternate frequency ranges & connector configurations
4. All connector configurations weatherproof to IP65 rating except models with solder posts
5. BNC-Male, TNC-Male and SMA-Male connector configurations are not currently available

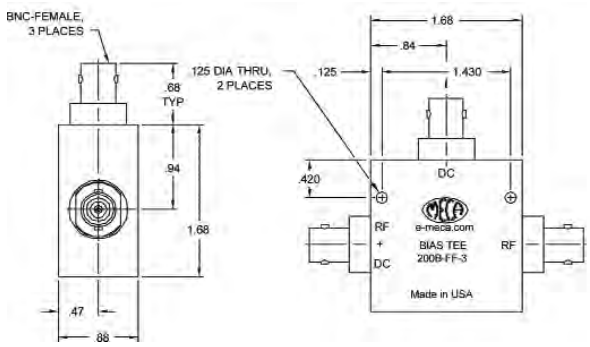
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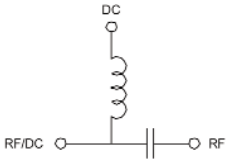
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Bias Tees, BNC, 0.5 - 2.5 GHz: 200B Series





Catalog Number	Freq. (GHz)	Connector Configuration			Insertion Loss		Isolation RF to DC		VSWR Input/Output	
		RF/DC	RF	DC	Typ	Max	Typ	Min	Typ	Max
200B-FF-1	0.5 - 2.5	BNC-Female	BNC-Female	N-Female	0.25	0.50	30	25	1.25:1	1.40:1
200B-FF-2	0.5 - 2.5	BNC-Female	BNC-Female	SMA-Female	0.25	0.50	30	25	1.25:1	1.40:1
200B-FF-3	0.5 - 2.5	BNC-Female	BNC-Female	BNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200B-FF-4	0.5 - 2.5	BNC-Female	BNC-Female	TNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200B-FF-5	0.5 - 2.5	BNC-Female	BNC-Female	Solder Post	0.25	0.50	30	25	1.25:1	1.40:1
200B-FF-6	0.5 - 2.5	BNC-Female	BNC-Female	SMB Male	0.25	0.50	30	25	1.25:1	1.40:1



RoHS compliant, Bias Tees cover wireless band applications from 0.500 – 2.500 GHz. **Our unique modular design offers maximum flexibility regardless of connector configuration at any port!** Available in 7/16 DIN, SMA, N, BNC & TNC configurations with RF power ratings to 300 watts (3 kW peak) and max DC levels of 100 VDC/7 Amps. Ideal for remote powering of bi-directional amplifiers (BDAs), repeaters and tower top amplifiers (TTAs) by BTS control modules. STOCK - 2 weeks ARO. All models weatherproof (IP65). Made in USA.

MECHANICAL SPECIFICATIONS	
Connectors	Brass, Albaloy
Pins	N-Male: Brass, Gold Plate N-Female: Beryllium Copper, Gold Plate SMA-Female:Beryllium Copper, Gold Plate BNC-Female: Beryllium Copper, Gold Plate TNC-Female: Beryllium Copper, Gold Plate SMB-Male: Beryllium Copper, Gold Plate Solder Post: Beryllium Copper, Silver
Housing	Aluminum, Iridite
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
O-Ring	Silicone Rubber
Weight (oz)	6.4

RoHS Compliant: Yes [2]

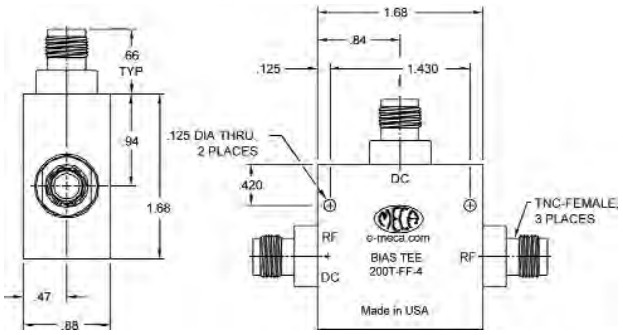
Notes:

1. Units are bi-directional
2. Solder post (-5) models are not RoHS compliant
3. Available in alternate frequency ranges & connector configurations
4. All connector configurations weatherproof to IP65 rating except models with solder posts
5. BNC-Male, TNC-Male and SMA-Male connector configurations are not currently available

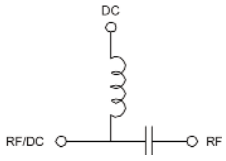
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Bias Tees, TNC, 0.5 - 2.5 GHz: 200T Series





Catalog Number	Freq. (GHz)	Connector Configuration			Insertion Loss		Isolation RF to DC		VSWR Input/Output	
		RF/DC	RF	DC	Typ	Max	Typ	Min	Typ	Max
200T-FF-1	0.5 - 2.5	TNC-Female	TNC-Female	N-Female	0.25	0.50	30	25	1.25:1	1.40:1
200T-FF-2	0.5 - 2.5	TNC-Female	TNC-Female	SMA-Female	0.25	0.50	30	25	1.25:1	1.40:1
200T-FF-3	0.5 - 2.5	TNC-Female	TNC-Female	BNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200T-FF-4	0.5 - 2.5	TNC-Female	TNC-Female	TNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200T-FF-5	0.5 - 2.5	TNC-Female	TNC-Female	Solder Post	0.25	0.50	30	25	1.25:1	1.40:1
200T-FF-6	0.5- 2.5	TNC-Female	TNC-Female	SMB Male	0.25	0.50	30	25	1.25:1	1.40:1



RoHS compliant, Bias Tees cover wireless band applications from 0.500 – 2.500 GHz. **Our unique modular design offers maximum flexibility regardless of connector configuration at any port!** Available in 7/16 DIN, SMA, N, BNC & TNC configurations with RF power ratings to 300 watts (3 kW peak) and max DC levels of 100 VDC/7 Amps. Ideal for remote powering of bi-directional amplifiers (BDAs), repeaters and tower top amplifiers (TTAs) by BTS control modules. STOCK - 2 weeks ARO. All models weatherproof (IP65). Made in USA.

MECHANICAL SPECIFICATIONS	
Connectors	Brass, Albaloy
Pins	N-Male: Brass, Gold Plate N-Female: Beryllium Copper, Gold Plate SMA-Female:Beryllium Copper, Gold Plate BNC-Female: Beryllium Copper, Gold Plate TNC-Female: Beryllium Copper, Gold Plate SMB-Male: Beryllium Copper, Gold Plate Solder Post: Beryllium Copper, Silver
Housing	Aluminum, Iridite
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
O-Ring	Silicone Rubber
Weight (oz)	6.4

RoHS Compliant: Yes [2]

Notes:
1. Units are bi-directional
2. Solder post (-5) models are not RoHS compliant
3. Available in alternate frequency ranges & connector configurations
4. All connector configurations weatherproof to IP65 rating except models with solder posts
5. BNC-Male, TNC-Male and SMA-Male connector configurations are not currently available

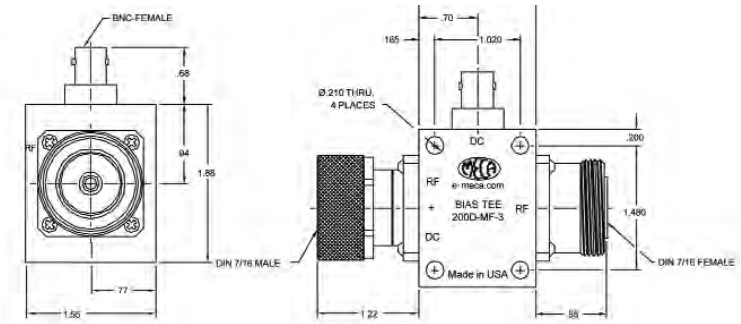
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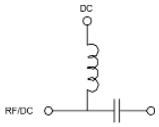
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Bias Tees, 7/16 DIN, 0.5 - 2.5 GHz: 200D Series





Catalog Number	Freq. (GHz)	Connector Configuration			Insertion Loss		Isolation RF to DC		VSWR Input/Output	
		RF/DC	RF	DC	Typ	Max	Typ	Min	Typ	Max
200D-MF-1	0.5 - 2.5	DIN-Male	DIN-Female	N-Female	0.25	0.50	30	25	1.25:1	1.40:1
200D-MF-2	0.5 - 2.5	DIN-Male	DIN-Female	SMA-Female	0.25	0.50	30	25	1.25:1	1.40:1
200D-MF-3	0.5 - 2.5	DIN-Male	DIN-Female	BNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200D-MF-4	0.5 - 2.5	DIN-Male	DIN-Female	TNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200D-MF-5	0.5 - 2.5	DIN-Male	DIN-Female	Solder Post	0.25	0.50	30	25	1.25:1	1.40:1
200D-MF-6	0.5 - 2.5	DIN-Male	DIN-Female	SMB-Male	0.25	0.50	30	25	1.25:1	1.40:1
200D-FM-1	0.5 - 2.5	DIN-Female	DIN-Male	N-Female	0.25	0.50	30	25	1.25:1	1.40:1
200D-FM-2	0.5 - 2.5	DIN-Female	DIN-Male	SMA-Female	0.25	0.50	30	25	1.25:1	1.40:1
200D-FM-3	0.5 - 2.5	DIN-Female	DIN-Male	BNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200D-FM-4	0.5 - 2.5	DIN-Female	DIN-Male	TNC-Female	0.25	0.50	30	25	1.25:1	1.40:1
200D-FM-5	0.5 - 2.5	DIN-Female	DIN-Male	Solder Post	0.25	0.50	30	25	1.25:1	1.40:1
200D-FM-6	0.5 - 2.5	DIN-Female	DIN-Male	SMB Male	0.25	0.50	30	25	1.25:1	1.40:1



RoHS compliant, Bias Tees cover wireless band applications from 0.500 – 2.500 GHz. **Our unique modular design offers maximum flexibility regardless of connector configuration at any port!** Available in 7/16 DIN, SMA, N, BNC & TNC configurations with RF power ratings to 300 watts (3 kW peak) and max DC levels of 100 VDC/7 Amps. Ideal for remote powering of bi-directional amplifiers (BDAs), repeaters and tower top amplifiers (TTAs) by BTS control modules. STOCK - 2 weeks ARO. All models weatherproof (IP65). Made in USA.

MECHANICAL SPECIFICATIONS	
Connectors	Brass, Albaloy
Pins	N-Male: Brass, Gold Plate N-Female: Beryllium Copper, Gold Plate SMA-Female:Beryllium Copper, Gold Plate BNC-Female: Beryllium Copper, Gold Plate TNC-Female: Beryllium Copper, Gold Plate SMB-Male: Beryllium Copper, Gold Plate Solder Post: Beryllium Copper, Silver
Housing	Aluminum, Iridite
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
O-Ring	Silicone Rubber
Weight (oz)	12.9

RoHS Compliant: Yes [2]

Notes:

1. Units are bi-directional
2. Solder post (-5) models are not RoHS compliant
3. Available in alternate frequency ranges & connector configurations
4. All connector configurations weatherproof to IP65 rating except models with solder posts
5. BNC-Male, TNC-Male and SMA-Male connector configurations are not currently available

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CIRCULATORS				
Power	**Connector**	**Frequency (GHz)**	**Catalog Number**	**Page**
250 watts	N-Female	0.7 - 0.8	CN-0.750	33
250 watts	N-Female	0.8 - 1.0	CN-0.900	33
150 watts	N-Female	1.7 - 2.2	CN-1.950	33
150 watts	N-Female	2.3 - 2.7	CN-2.500	33
25 watts	N-Female	2.0 - 4.0	CN-3.000	33
2 watts	N-Female	8.0 - 12.4	CN-6.000	33
250 watts	SMA-Female	0.7 - 0.8	CS-0.750	34
250 watts	SMA-Female	0.8 - 1.0	CS-0.900	34
150 watts	SMA-Female	1.7 - 2.2	CS-1.950	34
150 watts	SMA-Female	2.3 - 2.7	CS-2.500	34
25 watts	SMA-Female	2.0 - 4.0	CS-3.000	34
2 watts	SMA-Female	4.0 - 8.0	CS-6.000	34
2 watts	SMA-Female	8.0 - 12.4	CS-10.200-1	34
2 watts	SMA-Female	8.0 - 12.4	CS-15.200-1	34
ISOLATORS				
2 watts	N-Female	0.7 - 0.8	IN-0.750	35
2 watts	N-Female	0.8 - 1.0	IN-0.900	35
2 watts	N-Female	1.7 - 2.2	IN-1.950	35
2 watts	N-Female	2.3 - 2.7	IN-2.500	35
2 watts	N-Female	2.0 - 4.0	IN-3.000	35
2 watts	N-Female	4.0 - 8.0	IN-6.000	35
2 watts	SMA-Female	0.7 - 0.8	IS-0.750	36
2 watts	SMA-Female	0.8 - 1.0	IS-0.900	36
2 watts	SMA-Female	1.7 - 2.2	IS-1.950	36
2 watts	SMA-Female	2.3 - 2.7	IS-2.500	36
2 watts	SMA-Female	2.0 - 4.0	IS-3.000	36
2 watts	SMA-Female	4.0 - 8.0	IS-6.000	36
2 watts	SMA-Female	8.0 - 12.4	IS-10.200-1	36
2 watts	SMA-Female	12.4 - 18.0	IS-15.200-1	36

An **RF isolator** is a two-port ferromagnetic passive device which is used to protect other RF components from excessive signal reflection. Isolators are common place in laboratory applications to separate a device under test (DUT) from sensitive signal sources. An **RF circulator** is a three-port ferromagnetic passive device used to control the direction of signal flow in a circuit and is a very effective, low-cost alternative to expensive cavity duplexers in base station and in-building mesh networks.

Special Handling & Storage - Isolators and circulators have magnets that produce strong fields to control signal flow. As is the case with any magnet, when placed in close proximity to another, the magnetic fields oppose one another, and over time, will weaken the strength of the magnets. This is called degaussing. A similar effect can be seen when stored in close proximity to ferrous metals. Special care should be taken when storing any isolators/circulators and MECA recommends that the devices should be separated by 3 inches from each other and all ferrous surfaces to reduce degaussing effects.

MECA offers twenty-eight models of **isolators and circulators** in both N and SMA-female connectors with average power ratings from 2 - 250 watts. The most “popular” frequency bands between 0.7 - 18.0 GHz are readily available and can ship from STOCK in 4 weeks after receipt of your order.

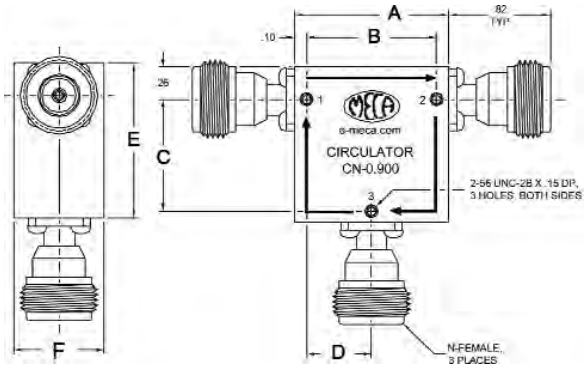
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Circulators, N-Female, 0.7 - 8.0 GHz





An RF circulator is a three-port passive device used to control the direction of signal flow in a circuit. MECA offers six N-Female circulators with average power ratings from 2 - 250 watts. The most "popular" frequency bands between 0.7 - 8.0 GHz are readily available and can ship from STOCK to 4 weeks after receipt of your order. Made in USA.

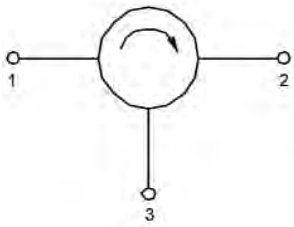
RF Circulators									
Catalog Number	Connector Style	Frequency (GHz)	Insertion Loss (Max)	VSWR (Max)	Isolation (Min)	Power (Watts)		Operating Case Temp (°C)	Outline Drawing
						Max	Peak		
CN-0.750	N-Female	0.7 - 0.8	0.5	1.30:1	17 dB	250	2,000	-20 to +65	1
CN-0.900	N-Female	0.8 - 1.0	0.4	1.25:1	20 dB	250	2,000	-20 to +65	2
CN-1.950	N-Female	1.7 - 2.2	0.4	1.25:1	20 dB	150	750	-20 to +65	2
CN-2.500	N-Female	2.3 - 2.7	0.4	1.25:1	20 dB	150	750	-20 to +65	2
CN-3.000	N-Female	2.0 - 4.0	0.6	1.35:1	17 dB	20	120	0 to +50	3
CN-6.000	N-Female	4.0 - 8.0	0.5	1.30:1	18.5 dB	2	20	-10 to +65	4

Mechanical Dimensions							
Drawing	A	B	C	D	E	F	Weight (oz)
1	1.58	1.38	1.27	0.69	1.62	0.73	6.00
2	1.25	1.05	0.90	0.53	1.25	0.73	4.07
3	1.58	1.38	1.27	0.69	1.62	0.70	6.00
4	1.00	0.80	0.68	0.40	1.00	0.50	2.82

MECHANICAL SPECIFICATIONS	
Connectors	N-Female:Brass Nickel Plated
Contact Pin	Beryllium Copper Gold Plate
Operating Temp	-20 to +65
Weight (oz)	See Mechanical Dimensions

RoHS Compliant: Yes

SCHEMATIC:



The diagram is a schematic for a circulator. The arrows represent the direction of the magnetic fields and the signal when applied to any port of these devices. Example: If a signal is placed at port A, and port B is well matched, the signal will exit at port B with very little loss (typically 0.4dB). If there is a mismatch at port B, the reflected signal from port B will be directed to port C. As you will note, it makes no difference which port is the input of the circulator because the relationship at the outputs remains the same as these devices are electrically and mechanically symmetrical.

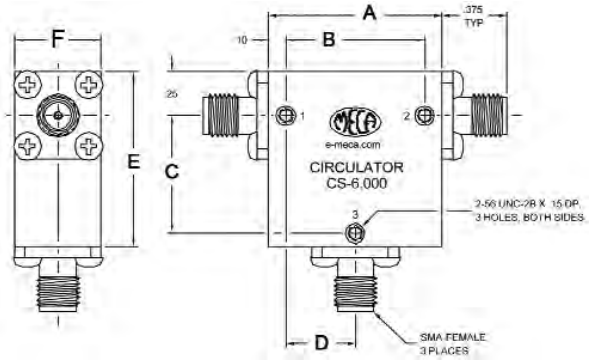
Notes:
1. Circulator power rated into a load mismatch of 1.05:1 all phase angles
2. Additional frequency ranges available, please consult with factory for specific ranges
3. Heat sink temperature must not exceed the maximum operating temperature specified

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Circulators, SMA-Female, 0.7 - 18.0 GHz





An RF circulator is a three-port passive device used to control the direction of signal flow in a circuit. MECA offers eight SMA-Female circulators with average power ratings from 2 - 250 watts. The most "popular" frequency bands between 0.7 - 18.0 GHz are readily available and can ship from STOCK to 4 weeks after receipt of your order. Made in USA.

RF Circulators

Catalog Number	Connector Style	Frequency (GHz)	Insertion Loss (Max)	VSWR (Max)	Isolation (Min)	Power (Watts)		Operating Case Temp (°C)	Outline Drawing
						Max	Peak		
CS-0.750	SMA-Female	0.7 - 0.8	0.4	1.25:1	17 dB	250	2,000	-20 to +65	1
CS-0.900	SMA-Female	0.8 - 1.0	0.4	1.25:1	20 dB	250	2,000	-20 to +65	2
CS-1.950	SMA-Female	1.7 - 2.2	0.4	1.25:1	20 dB	150	750	-20 to +65	2
CS-2.500	SMA-Female	2.3 - 2.7	0.4	1.25:1	20 dB	150	750	-20 to +65	2
CS-3.000	SMA-Female	2.0 - 4.0	0.6	1.35:1	17 dB	20	120	0 to +50	3
CS-6.000	SMA-Female	4.0 - 8.0	0.5	1.30:1	18.5 dB	2	20	-10 to +65	4
CS-10.200-1	SMA-Female	8.0 - 12.4	0.4	1.30:1	18 dB	2	50	-10 to +60	5
CS-15.200-1	SMA-Female	12.4 - 18.0	0.4	1.30:1	18 dB	2	50	-10 to +60	6

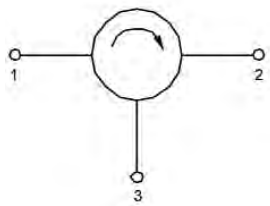
Mechanical Dimensions

Drawing	A	B	C	D	E	F	Weight (oz)
1	1.58	1.38	1.27	0.69	1.62	0.73	4.59
2	1.25	1.05	0.90	0.53	1.25	0.73	2.82
3	1.58	1.38	1.27	0.69	1.62	0.70	3.53
4	1.00	0.80	0.68	0.40	1.00	0.50	1.52
5	0.75	0.50	-	-	0.90	0.50	1.60
6	0.65	0.45	-	-	0.75	0.50	1.60

MECHANICAL SPECIFICATIONS	
Connectors	SMA:Passivated Stainless Steel
Contact Pin	Beryllium Copper Gold Plate
Operating Temp	-20 to +65
Weight (oz)	See Mechanical Dimensions

RoHS Compliant: Yes

SCHEMATIC:



The diagram is a schematic for a circulator. The arrows represent the direction of the magnetic fields and the signal when applied to any port of these devices. Example: If a signal is placed at port A, and port B is well matched, the signal will exit at port B with very little loss (typically 0.4dB). If there is a mismatch at port B, the reflected signal from port B will be directed to port C. As you will note, it makes no difference which port is the input of the circulator because the relationship at the outputs remains the same as these devices are electrically and mechanically symmetrical.

Notes:

1. Circulator power rated into a load mismatch of 1.05:1 all phase angles
2. Additional frequency ranges available, please consult with factory for specific requests
3. Heat sink temperature must not exceed the maximum operating temperature specified

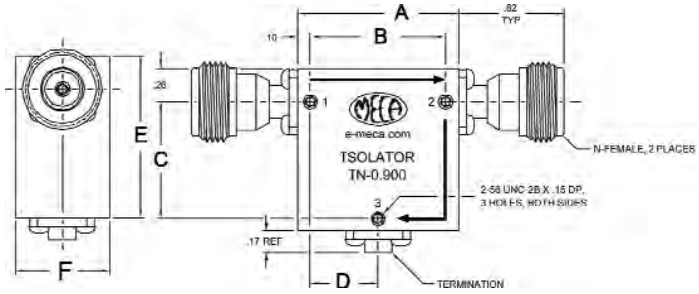
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Isolators, N-Female, 0.7 - 8.0 GHz





An RF isolator is a two-port passive device made of magnets and ferrite material which is used to protect other RF components from excessive signal reflection. MECA offers six N-Female isolators with average power ratings of 2 watts. The most "popular" frequency bands between 0.7 - 8.0 GHz are readily available and can ship from STOCK to 4 weeks after receipt of your order. Made in USA.

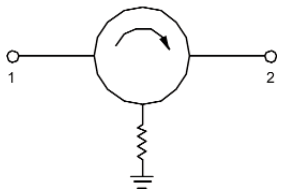
RF Isolators									
Catalog Number	Connector Style	Frequency (GHz)	Insertion Loss (Max)	VSWR (Max)	Isolation (Min)	Power (Watts)		Operating Case Temp (°C)	Outline Drawing
						Max	Peak		
IN-0.750	N-Female	0.7 - 0.8	0.4	1.25:1	17 dB	2	2,000	-20 to +65	1
IN-0.900	N-Female	0.8 - 1.0	0.4	1.25:1	20 dB	2	2,000	-20 to +65	2
IN-1.950	N-Female	1.7 - 2.2	0.4	1.25:1	20 dB	2	750	-20 to +65	2
IN-2.500	N-Female	2.3 - 2.7	0.4	1.25:1	20 dB	2	750	-20 to +65	2
IN-3.000	N-Female	2.0 - 4.0	0.6	1.35:1	17 dB	2	120	0 to +50	3
IN-6.000	N-Female	4.0 - 8.0	0.5	1.30:1	18.5 dB	2	20	-10 to +65	4

Mechanical Dimensions							
Drawing	A	B	C	D	E	F	Weight
1	1.58	1.38	1.27	0.69	1.62	0.73	5.64
2	1.25	1.05	0.90	0.53	1.25	0.73	3.70
3	1.58	1.38	1.27	0.69	1.62	0.70	5.64
4	1.00	0.80	0.68	0.40	1.00	0.50	2.40

MECHANICAL SPECIFICATIONS	
Connectors	N-Female:Brass Nickel Plated
Contact Pin	Beryllium Copper Gold Plate
Operating Temp	-20 to +65
Weight (oz)	See Mechanical Dimensions

RoHS Compliant: Yes

SCHEMATIC :



The diagram is a schematic for an isolator. Notice how an isolator is a circulator with the third port terminated. Higher isolator power levels can be achieved utilizing our circulators with an external load which would make the limiting factor the ferrite material and not an internal resistor. The arrows represent the direction of the magnetic fields and the signal when applied to any port of these devices. Example: If a signal is placed at port A, and port B is well matched, the signal will exit at port B with very little loss (typically 0.4dB). If there is a mismatch at port B, the reflected signal from port B will be directed to the termination at port C. The amount of isolation is directly affected by the VSWR presented at port 3 of the isolator. If the match on port C is poor, you can expected isolation below 10 dB, but if the match is improved to 1.10:1 by using a good termination device in the circuit, then the isolation would improve to over 20 dB.

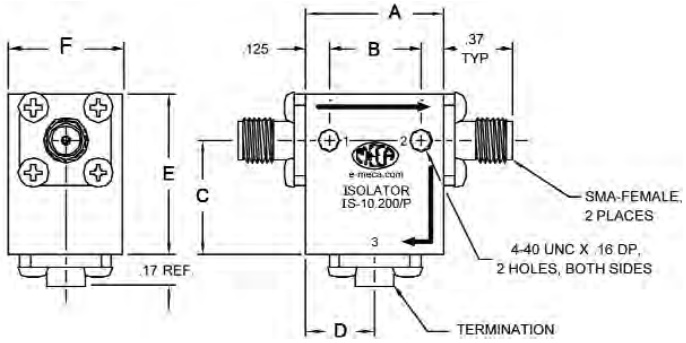
Notes:
1. Isolation performance contingent on a VSWR of 1.05:1 Max. on terminated ports
2. Additional frequency ranges available, please consult with factory for specific ranges
3. Heat sink temperature must not exceed the maximum operating temperature specified
4. Higher Isolator power levels can be achieved utilizing our circulators with an external load. MECA carries an extensive selection of high power loads. Please consult with a MECA applications engineer to discuss your requirement

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Isolators, SMA-Female, 0.7 - 18.0 GHz





An RF isolator is a two-port passive device made of magnets and ferrite material which is used to protect other RF components from excessive signal reflection. MECA offers eight SMA-Female isolators with average power ratings of 2 watts. The most "popular" frequency bands between 0.7 - 18.0 GHz are readily available and can ship from STOCK to 4 weeks after receipt of your order. Made in USA.

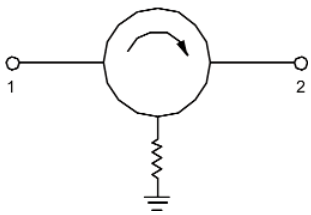
RF Isolators									
Catalog Number	Connector Style	Frequency (GHz)	Insertion Loss (Max)	VSWR (Max)	Isolation (Min)	Power (Watts)		Operating Case Temp (°C)	Outline Drawing
						Max	Peak		
IS-0.750	SMA-Female	0.7 - 0.8	0.4	1.25:1	17 dB	2	2,000	-20 to +65	1
IS-0.900	SMA-Female	0.8 - 1.0	0.4	1.25:1	20 dB	2	2,000	-20 to +65	2
IS-1.950	SMA-Female	1.7 - 2.2	0.4	1.25:1	20 dB	2	750	-20 to +65	2
IS-2.500	SMA-Female	2.3 - 2.7	0.4	1.25:1	20 dB	2	750	-20 to +65	2
IS-3.000	SMA-Female	2.0 - 4.0	0.6	1.35:1	17 dB	2	120	0 to +50	3
IN-6.000	SMA-Female	4.0 - 8.0	0.5	1.30:1	18.5 dB	2	20	-10 to +65	4
IS-10.200-1	SMA-Female	8.0 - 12.4	0.4	1.30:1	18 dB	2	50	-10 to +60	5
IS-15.200-1	SMA-Female	12.4 - 18.0	0.4	1.30:1	18 dB	2	50	-10 to +60	6

Mechanical Dimensions							
Drawing	A	B	C	D	E	F	Weight (oz)
1	1.58	1.38	1.27	0.69	1.62	0.73	4.23
2	1.25	1.05	0.90	0.53	1.25	0.73	2.82
3	1.58	1.38	1.27	0.69	1.62	0.70	3.53
4	1.00	0.80	0.68	0.40	1.00	0.50	1.52
5	0.75	0.50	-	-	0.90	0.50	1.60
6	0.65	0.45	-	-	0.75	0.50	1.60

MECHANICAL SPECIFICATIONS	
Connectors	SMA:Passivated Stainless Steel
Contact Pin	Beryllium Copper Gold Plate
Operating Temp	-20 to +65
Weight (oz)	See Mechanical Dimensions

RoHS Compliant: Yes

SCHEMATIC :



The diagram is a schematic for an isolator. Notice how an isolator is a circulator with the third port terminated. Higher isolator power levels can be achieved utilizing our circulators with an external load which would make the limiting factor the ferrite material and not an internal resistor. The arrows represent the direction of the magnetic fields and the signal when applied to any port of these devices. Example: If a signal is placed at port A, and port B is well matched, the signal will exit at port B with very little loss (typically 0.4dB). If there is a mismatch at port B, the reflected signal from port B will be directed to the termination at port C. The amount of isolation is directly affected by the VSWR presented at port 3 of the isolator. If the match on port C is poor, you can expected isolation below 10 dB, but if the match is improved to 1.10:1 by using a good termination device in the circuit, then the isolation would improve to over 20 dB.

Notes:
1. Isolation performance contingent on a VSWR of 1.05:1 Max. on terminated ports
2. Additional frequency ranges available, please consult with factory for specific ranges
3. Heat sink temperature must not exceed the maximum operating temperature specified
4. Higher Isolator power levels can be achieved utilizing our circulators with an external load. MECA carries an extensive selection of high power loads. Please consult with a MECA applications engineer to discuss your requirement

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

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DIRECTIONAL COUPLERS OVERVIEW				
Connector Configuration			Catalog Number	Page
Input	Output	Coupled Port		
SINGLE DIRECTIONAL COUPLERS				
N-Female	N-Female	N-Female	CN Series	38
SMA-Female	SMA-Female	SMA-Female	CS Series	38
N-Female	N-Female	N-Female	715 Series	39
SMA-Female	SMA-Female	SMA-Female	715S Series	40
7/16 DIN	7/16 DIN	N-Female	715D Series	41
N-Male	N-Female	SMA-Female	721 Series	42
SMA-Female	SMA-Female	SMA-Female	780 Series	43
DUAL DIRECTIONAL COUPLERS				
N-Female	N-Female	N-Female	722N Series	39
SMA-Female	SMA-Female	SMA-Female	722S Series	40
7/16 DIN	7/16 DIN	N-Female	722D Series	41
N-Male	N-Female	SMA-Female	722 Series	42
HYBRID COUPLERS 90º				
N-Female			705N Series	44
7/16 DIN-Female			705D Series	44
SMA-Female			705S Series	45
HYBRID RING COUPLER 180º				
7/16 DIN-Female			700D Series	46
N-Female			700 Series	46

Directional couplers are used in a wide variety of applications and can satisfy almost any requirement for sampling incident and reflected microwave power conveniently and accurately with minimal disturbance to the transmission line. Some general applications for directional couplers include line monitoring, power measurements and load source isolators. When line monitoring, for the purpose of power level measuring and VSWR alarms, a directional coupler is used to sample power from the transmission line without altering line characteristics. In power measurements, insertion of a directional coupler in the transmission line allows measurement with simple low level detectors or field strength meters and power measuring equipment.

MECA's line of high performance directional and hybrid couplers covers all wireless band applications from 0.400 - 18.000 GHz with power levels to 1000 watts. These units are equipped with 7/16 DIN-Female, N-Female or SMA-Female connectors and a rugged aluminum housing for long lasting reliable performance. Made in USA and offer low insertion loss and excellent VSWR.

Theoretical Mainline Insertion Loss Due to Coupling Factor (dB)									
Coupling Factor	3	6	8	10	15	20	30	40	50
Single Directional Coupler	3.01	1.2560	0.749	0.4560	0.140	0.0436	0.0043	0.0004	0.00004
Dual Directional Coupler	6.02	2.5120	1.498	0.9120	0.280	0.0872	0.0086	0.0008	0.00008

How To Order:
Insert coupling value in place of dB
EXAMPLE: 715-10-0.900 for single directional, 10 dB, 0.800 - 1.000 GHz

Common Coupling Ratios	
Coupling Value	Ratio (%)
3 dB	50/50
6 dB	75/25
8 dB	85/15
10 dB	90/10
15 dB	97/3
20 dB	99/1

The first number of the ratio is the % of power that passes through the device to the output port. The second is the % of power at the coupled port.

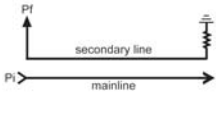
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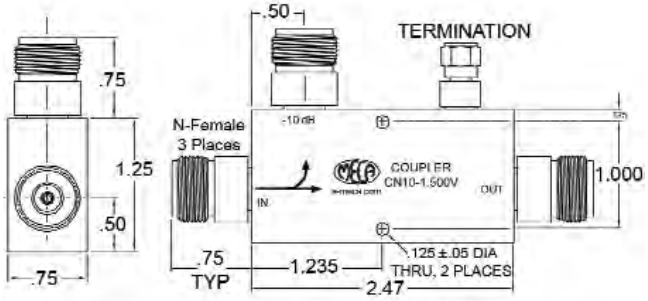
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Single Directional, N-Female, SMA-Female: CN & CS Series



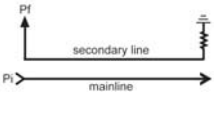
CN Series

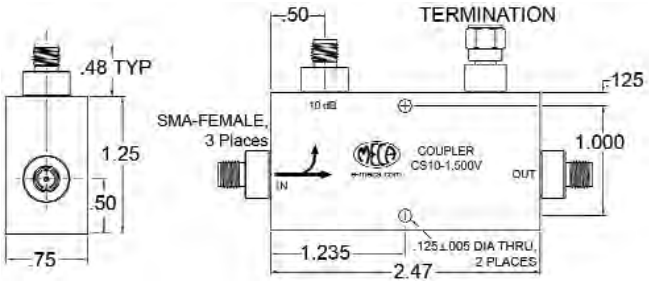






CS Series





MECA 50 watt couplers offer industry-leading performance, quality and reliability. Rugged construction and excellent performance across all wireless bands from 0.7 - 2.2 GHz make them ideal for base station and in-building DAS systems. Unique design provides lowest possible insertion loss while delivering high directivity and exceptional VSWR. Available from STOCK in 6, 10, 15 & 20 dB coupling with either Type-N or SMA-Female connector configurations. **Also available in TNC-Female**.

N-Female							
Catalog Number	**Frequency (GHz)**	**Coupling Variation (Total)**	**Insertion Loss (Typ/Max)**	**Directivity (Typ/Min)**	**VSWR (Typ/Max)**	**Length Inches**	**Weight (oz)**
CN06-1.500V	0.700 - 2.200	6 ± 1.5 dB	0.4/0.5 dB	22/17.5 dB	1.25:1/1.35:1	2.47	5.96
CN10-1.500V	0.700 - 2.200	10 ± 0.75 dB	0.35 dB	20 dB	1.20:1	2.47	5.96
CN15-1.500V	0.700 - 2.200	15 ± 0.75 dB	0.3 dB	22 dB	1.15:1	2.47	5.96
CN20-1.500V	0.700 - 2.200	20 ± 0.75 dB	0.3 dB	22 dB	1.15:1	2.47	5.96

SMA-Female							
Catalog Number	**Frequency (GHz)**	**Coupling Variation (Total)**	**Insertion Loss (Typ/Max)**	**Directivity (Min)**	**VSWR (Typ/Max)**	**Length Inches**	**Weight (oz)**
CS06-1.500V	0.700 - 2.200	6 ± 1.5 dB	0.4/0.5dB	18 dB	1.25:1/1.35:1	2.47	4.26
CS10-1.500V	0.700 - 2.200	10 ± 0.75 dB	0.35 dB	20 dB	1.20:1	2.47	4.26
CS15-1.500V	0.700 - 2.200	15 ± 0.75 dB	0.3 dB	22 dB	1.15:1	2.47	4.26
CS20-1.500V	0.700 - 2.200	20 ± 0.75 dB	0.3 dB	22 dB	1.15:1	2.47	4.26

Notes:

1. Indoor use only
2. RoHS compliant
3. Variation includes flatness/sensitivity
4. 50 ohm nominal impedance standard
5. All units have a peak power rating of 3 kW
6. Mounting holes 0.125” diameter thru in 2 places
7. Operating temperature is from -55° C to +85° C
8. Excluding theoretical insertion loss due to coupling (see table)

Average Power (Watts)				
Coupling Factor	**6 dB**	**10 dB**	**15 dB**	**20 dB**
Forward	50	50	75	100
Reverse	2	5	25	100
Theoretical Insertion Loss Due to Coupling Factor (dB)				
Insertion Loss	1.256	0.456	0.139	0.043

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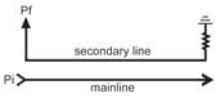
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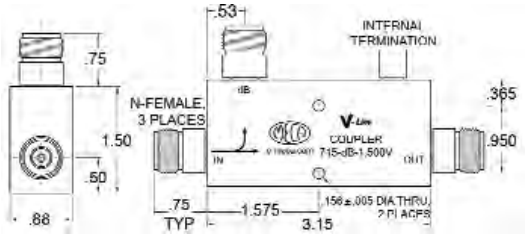
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500W, N-Female, 0.400-4.200 GHz: 715 & 722N Series



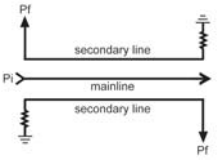
715 Series - Single Directional

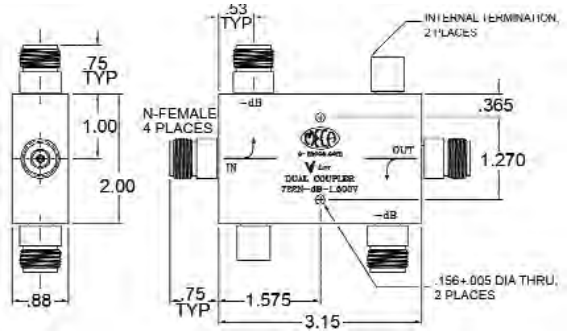






722N Series - Dual Directional





MECA's high power, low loss directional couplers are ideal for your systems applications where precise monitoring, external leveling, signal mixing or swept transmission and reflection measurements are necessary.

Catalog Number		Frequency (GHz)	Coupling Variation (Total)	Insertion Loss (Max)	Directivity (Min)	VSWR (Max)	Length (L) Inches	Weight (oz)	
								715	722N
715-dB-0.600	722N-dB-0.600	0.400 - 0.800	± 1.00	0.1 dB	25 dB	1.15:1	6.08	14.83	20.00
715-dB-0.900	722N-dB-0.900	0.800 - 1.000 0.600 - 1.200	± 0.60 ± 1.60	0.1 dB 0.1 dB	30 dB 25 dB	1.10:1 1.15:1	4.46	11.69	15.69
715-dB-1.500V	722N-dB-1.500V	0.800 - 2.200	± 1.75	0.1 dB	25 dB	1.15:1	3.15	8.86	11.98
715-dB-1.650W	722N-dB-1.650W	0.800 - 2.500	± 2.20	0.1 dB	25 dB	1.15:1	2.96	8.59	11.44
715-dB-1.950	722N-dB-1.950	1.700 - 2.200 1.300 - 2.600	± 0.60 ± 1.20	0.1 dB 0.1 dB	25 dB 25 dB	1.10:1 1.15:1	2.70	7.95	10.79
715-dB-3.100	722N-dB-3.100	2.000 - 4.200	± 1.20	0.1 dB	25 dB	1.15:1	2.14	6.85	9.32

Nominal coupling values of **6**, **8**, **10**, **15**, **20**, **30** and **40 dB** are standard. **722N Series is not available in 6 or 8 dB**. To order or specify, please insert coupling value in place of dB. EXAMPLE: 715-**10**-0.900 for single directional coupler, **10 dB**, 0.800 - 1.000 GHz.

Average Power (Watts)								
Coupling Factor		6 dB	8 dB	10 dB	15 dB	20 dB	30 dB	40 dB
715 Series	Forward	100	100	250	250	500	500	500
	Reverse	10	10	25	125	250	500	500
722N Series	Forward/Reverse	N/A	N/A	25	125	250	500	500
Theoretical Mainline Power Split Due to Coupling Factor (dB)								
715 Series		1.2560	0.749	0.4560	0.140	0.0436	0.0043	0.0004
722N Series		2.5120	1.498	0.9120	0.280	0.0872	0.0086	0.0008

*** For higher average power, couplers can be configured with external load based on your application.**

Common Coupling Ratios	
Coupling Value	Ratio (%)
3 dB	50/50
6 dB	75/25
8 dB	85/15
10 dB	90/10
15 dB	97/3
20 dB	99/1

Notes:

1. Indoor use only
2. RoHS compliant
3. Variation includes flatness/sensitivity
4. 50 ohm nominal impedance standard
5. All units have a peak power rating of 3 kW
6. Mounting holes 0.125" diameter thru in 2 places
7. Operating temperature is from -55° C to +85° C
8. Excluding theoretical insertion loss due to coupling (see table)

How To Order:
Insert coupling value in place of dB
EXAMPLE: 715-10-0.900 for single directional, 10 dB, 0.800 - 1.000 GHz

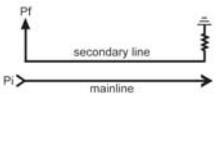
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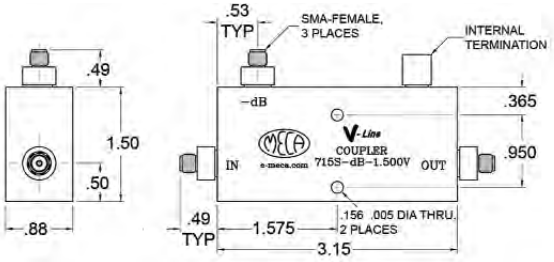
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100W, SMA-Female, 0.400-4.200 GHz: 715S & 722S Series



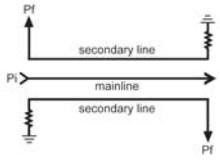
715S Series - Single Directional

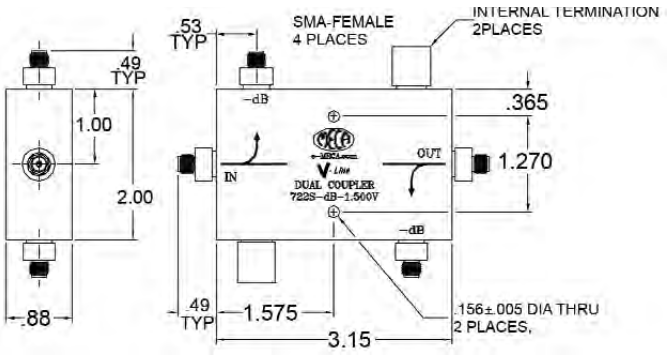






722S Series - Dual Directional





MECA's high power, low loss directional couplers are ideal for your system applications where precise monitoring, external leveling, signal mixing or swept transmission and reflection measurements are necessary.

Catalog Number		Frequency (GHz)	Coupling Variation (Total)	Insertion Loss (Max)	Directivity (Min)	VSWR (Max)	Length (L) Inches	Weight (oz)	
								715S	722S
715S-dB-0.600	722S-dB-0.600	0.400 - 0.800	± 1.00	0.1 dB	25 dB	1.15:1	6.08	13.19	17.82
715S-dB-0.900	722S-dB-0.900	0.800 - 1.000 0.600 - 1.200	± 0.60 ± 1.60	0.1 dB 0.1 dB	27 dB 25 dB	1.10:1 1.15:1	4.46	9.75	13.15
715S-dB-1.500V	722S-dB-1.500V	0.800 - 2.200	± 1.75	0.1 dB	25 dB	1.15:1	3.15	7.11	9.52
715S-dB-1.650W	722S-dB-1.650W	0.800 - 2.500	± 2.20	0.1 dB	25 dB	1.15:1	2.96	6.69	9.09
715S-dB-1.950	722S-dB-1.950	1.700 - 2.200 1.300 - 2.600	± 0.60 ± 1.60	0.1 dB 0.1 dB	25 dB 25 dB	1.10:1 1.15:1	2.70	6.23	8.42
715S-dB-3.100	722S-dB-3.100	2.000 - 4.200	± 1.20	0.1 dB	25 dB	1.15:1	2.14	5.03	6.91

Nominal coupling values of **6**, **8**, **10**, **15**, **20**, **30** and **40 dB** are standard. **722S Series is not available in 6 or 8 dB**. To order or specify, please insert coupling value in place of dB. EXAMPLE: 715S-**10**-0.900 for single directional coupler, **10 dB**, 0.800 - 1.000 GHz.

Average Power (Watts)								
Coupling Factor		6 dB	8 dB	10 dB	15 dB	20 dB	30 dB	40 dB
715S Series	Forward	100	100	250	250	500	500	500
	Reverse	10	10	25	125	250	500	500
722S Series	Forward/Reverse	N/A	N/A	25	125	250	500	500
Theoretical Mainline Power Split Due to Coupling Factor (dB)								
715S Series		1.2560	0.749	0.4560	0.140	0.0436	0.0043	0.0004
722S Series		2.5120	1.498	0.9120	0.280	0.0872	0.0086	0.0008

Common Coupling Ratios	
Coupling Value	Ratio (%)
3 dB	50/50
6 dB	75/25
8 dB	85/15
10 dB	90/10
15 dB	97/3
20 dB	99/1

*** For higher average power, couplers can be configured with external load based on your application.**

Notes:
1. Indoor use only
2. RoHS compliant
3. Variation includes flatness/sensitivity
4. 50 ohm nominal impedance standard
5. All units have a peak power rating of 3 kW
6. Mounting holes 0.125" diameter thru in 2 places
7. Operating temperature is from -55° C to +85° C
8. Excluding theoretical insertion loss due to coupling (see table)

How To Order:
Insert coupling value in place of dB
EXAMPLE: 715S-10-0.900 for single directional, 10 dB, 0.800 - 1.000 GHz

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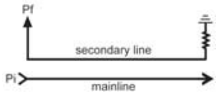
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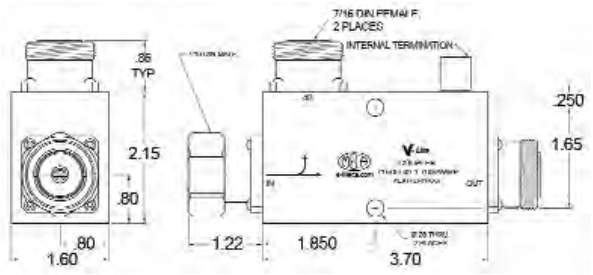
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500W, 7/16 DIN-Female, 0.400-4.200 GHz: 715D & 722D Series



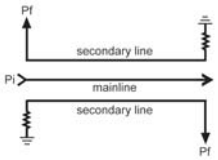
715DD Series - Single Directional

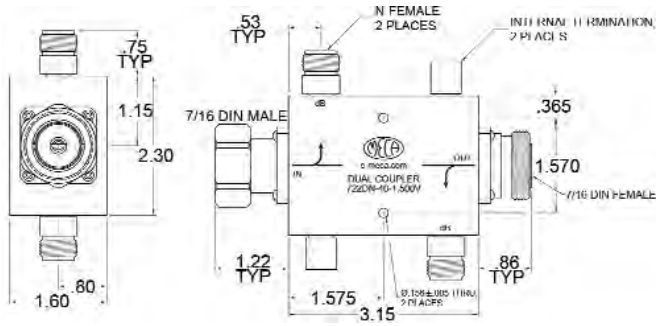






722DN Series - Dual Directional





MECA's high power, low loss directional couplers are ideal for your system applications where precise monitoring, external leveling, signal mixing or swept transmission and reflection measurements are necessary. Weather resistant models (IP61) available upon request.

Catalog Number		Frequency (GHz)	Coupling Variation (Total)	Insertion Loss (Max)	Directivity (dB)		VSWR (Max)	Length (L) Inches	Weight (oz)	
					Typ	Min			715D	722D
715DD-dB-1.500V	722DD-dB-1.500V	0.800 - 2.200	± 1.75	0.15 dB	23-18	18 Min	1.30:1	3.15	18.40	24.65
715DN-dB-1.500V	722DN-dB-1.500V	0.800 - 2.200	± 1.75	0.15 dB	23-18	18 Min	1.30:1	3.15	20.00	26.80
715DS-dB-1.500V	722DS-dB-1.500V	0.800 - 2.200	± 1.75	0.15 dB	23-18	18 Min	1.30:1	3.15	18.40	24.65

Nominal coupling values of **10**, **20**, **30** and **40 dB** are standard. Please insert coupling value in place of dB. EXAMPLE: 715DD-**10**-1.500V for single directional coupler, **10 dB**, 0.800 - 2.200 GHz, DIN connectors all ports.

Average Power (Watts)					
Coupling Factor		10 dB	20 dB	30 dB	40 dB
715D Series	Forward	250	500	500	500
	Reverse	25	250	500	500
722D Series	Forward/Reverse	25	250	500	500
Theoretical Mainline Power Split Due to Coupling Factor (dB)					
715D Series		0.4560	0.0436	0.0043	0.0004
722D Series		0.9120	0.0872	0.0086	0.0008

***For higher average power, couplers can be configured with external load based on your application.**

Connector Configuration			
Connector	Input	Output	Coupling Port
DD	DIN-Male	DIN-Female	DIN-Female
DN	DIN-Male	DIN-Female	N-Female
DS	DIN-Male	DIN-Female	SMA-Female

Common Coupling Ratios	
Coupling Value	Ratio (%)
3 dB	50/50
6 dB	75/25
8 dB	85/15
10 dB	90/10
15 dB	97/3
20 dB	99/1

Notes:
1. Indoor use only
2. RoHS compliant
3. Variation includes flatness/sensitivity
4. 50 ohm nominal impedance standard
5. All units have a peak power rating of 3 kW
6. Mounting holes 0.125" diameter thru in 2 places
7. Operating temperature is from -55° C to +85° C
8. Excluding theoretical insertion loss due to coupling (see table)

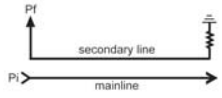
How To Order:
Insert coupling value in place of dB
EXAMPLE: 715DD-10-1.500V for single directional, DIN coupler port, 10 dB, 0.800 - 2.200GHz

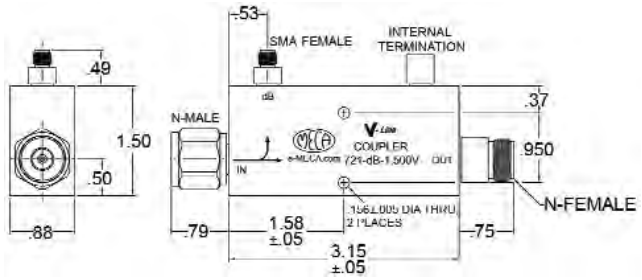
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Single/Dual Directional, "In-Line", 0.4-4.2 GHz: 721 & 722 Series

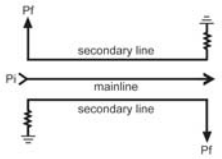


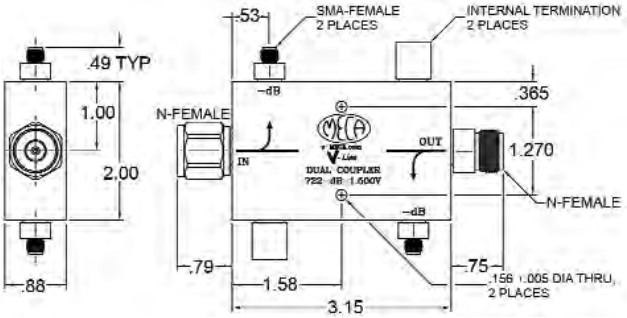




721 Series - Single Directional







722 Series - Dual Directional

The "in-line" design eliminates the need for connector adaptors that add loss and uncertainty to your critical measurements. MECA's 721 & 722 series directional couplers are high power capable with extremely low insertion loss and are ideal for your system applications where precise monitoring, external leveling, signal mixing or swept transmission and reflection measurements are desired.

Catalog Number		Frequency (GHz)	Coupling Variation (Total)	Insertion Loss (Max)	Directivity (Min)	VSWR (Max)	Length (L) Inches	Weight (oz)	
								721	722
721-dB-0.600	722-dB-0.600	0.400 - 0.800	± 1.00	0.1 dB	25 dB	1.15:1	2.14	14.53	18.39
721-dB-0.900	722-dB-0.900	0.800 - 1.000 0.600 - 1.200	± 0.60 ± 1.60	0.1 dB 0.1 dB	27 dB 25 dB	1.10:1 1.15:1	4.46	11.39	14.50
721-dB-1.500V	722-dB-1.500V	0.800 - 2.200	± 1.75	0.1 dB	25 dB	1.15:1	3.15	8.63	11.05
721-dB-1.650W	722-dB-1.650W	0.800 - 2.500	± 2.20	0.1 dB	25 dB	1.15:1	2.96	8.29	10.49
721-dB-1.950	722-dB-1.950	1.700 - 2.200 1.300 - 2.600	± 0.60 ± 1.20	0.1 dB 0.1 dB	25 dB 25 dB	1.10:1 1.15:1	2.70	7.75	10.05
721-dB-3.100	722-dB-3.100	2.000 - 4.200	± 1.20	0.1 dB	25 dB	1.15:1	2.14	6.60	8.43

Nominal coupling values of **6**, **8**, **10**, **15**, **20**, **30** and **40 dB** are standard. **722 Series is not available in 6 or 8 dB**. To order or specify, please insert coupling value in place of dB. EXAMPLE: 715S-**10**-0.900 for single directional coupler, **10 dB**, 0.800 - 1.000 GHz.

Average Power (Watts)								
Coupling Factor		6 dB	8 dB	10 dB	15 dB	20 dB	30 dB	40 dB
721 Series	Forward	100	100	250	250	500	500	500
	Reverse	10	10	25	125	250	500	500
722 Series	Forward/Reverse	N/A	N/A	25	125	250	500	500
Theoretical Mainline Power Split Due to Coupling Factor (dB)								
721 Series		1.2560	0.749	0.4560	0.140	0.0436	0.0043	0.0004
722 Series		2.5120	1.498	0.9120	0.280	0.0872	0.0086	0.0008

Common Coupling Ratios	
Coupling Value	Ratio (%)
3 dB	50/50
6 dB	75/25
8 dB	85/15
10 dB	90/10
15 dB	97/3
20 dB	99/1

*** For higher average power, couplers can be configured with external load based on your application.**

Notes:
1. Indoor use only
2. RoHS compliant
3. Variation includes flatness/sensitivity
4. 50 ohm nominal impedance standard
5. All units have a peak power rating of 3 kW
6. Mounting holes 0.125" diameter thru in 2 places
7. Operating temperature is from -55° C to +85° C
8. Excluding theoretical insertion loss due to coupling (see table)

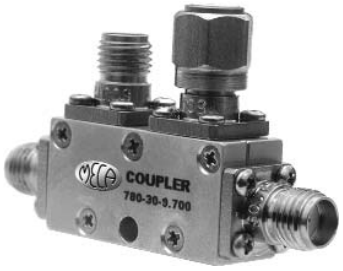
How To Order:
Insert coupling value in place of dB
EXAMPLE: 721-10-0.900 for single directional, 10 dB, 0.800 - 1.000 GHz

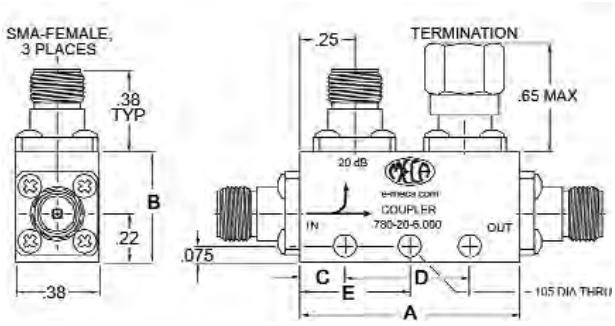
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Single Directional, SMA-Female, 0.5-18.0 GHz: 780 Series





Miniature Octave Band Directional Couplers, 0.500 - 18.000 GHz

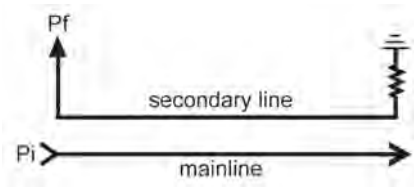
MECA offers a miniature, 50 watt, SMA-Female directional coupler ideal for space-restricted applications where precise monitoring, external leveling, signal mixing or swept transmission and reflection measurements are necessary.

Available in 6, 10, 20 and 30 dB coupling values for the L, S, C, X and Ku band applications. Made in the USA. 36 Month Warranty.

Drawing	A	B	C	D	E
1	3.10	0.50	0.60	1.50	-
2	1.78	0.50	0.42	0.94	-
3	1.16	0.50	0.41	0.94	-
4	1.00	0.50	-	-	0.50
5	1.00	0.60	-	-	0.50
6	2.13	0.70	0.56	1.00	-

Catalog Number	Frequency (GHz)	Coupling Variation (Total)	Insertion Loss (Max)	Directivity (Min)	VSWR (Max)	Weight (oz)	Outline Drawing
780-dB-0.750	0.500 - 1.000	± 1.25 dB	0.15 dB	25 dB	1.10:1	1.29	1
780-dB-1.500	1.000 - 2.000	± 1.25 dB	0.20 dB	25 dB	1.10:1	0.89	2
780-dB-3.000	2.000 - 4.000	± 1.25 dB	0.20 dB	22 dB	1.15:1	0.73	3
780-dB-3.900	2.600 - 5.200	± 1.25 dB	0.25 dB	20 dB	1.25:1	0.66	4
780-dB-6.000	4.000 - 8.000	± 1.25 dB	0.25 dB	20 dB	1.25:1	0.66	4
780-dB-9.700	7.000 - 12.400	± 1.00 dB	0.35 dB	17 dB	1.30:1	0.66	4
780-dB-11.750	7.500 - 16.000	± 1.25 dB	0.50 dB	15 dB	1.35:1 Main 1.40:1 Sec.	0.66	5
780-dB-15.200	12.400 - 18.000	± 1.00 dB	0.50 dB	15 dB	1.30:1 Main 1.40:1 Sec.	0.66	5
780-dB-10.000	2.000 - 18.000	± 1.00 dB	0.90 dB	15 dB	1.35:1 Main 1.40:1 Sec.	1.31	6

Nominal coupling values of 6, 10, 20 and 30 dB are standard. To order or specify, please insert coupling value in place of dB. EXAMPLE: 780-**10**-0.750 for **10 dB**, 0.500 - 1.000 GHz.



Average Power (Watts)[2]				
Coupling Factor	6 dB	10 dB	20 dB	30 dB
Forward	50	50	50	50
Reverse	2	5	50	50
Theoretical Insertion Loss Due to Coupling Factor (dB)				
Insertion Loss	1.2560	0.4560	0.0436	0.0043

Notes:
1. Indoor use only
2. RoHS compliant
3. Variation includes flatness/sensitivity
4. 50 ohm nominal impedance standard
5. All units have a peak power rating of 3 kW
6. Operating temperature is from -55° C to +85° C
7. Excluding theoretical insertion loss due to coupling (see table)

How To Order:
Insert coupling value in place of dB
EXAMPLE: 780-10-0.750 for single directional, 10 dB, 0.500 - 1.000 GHz

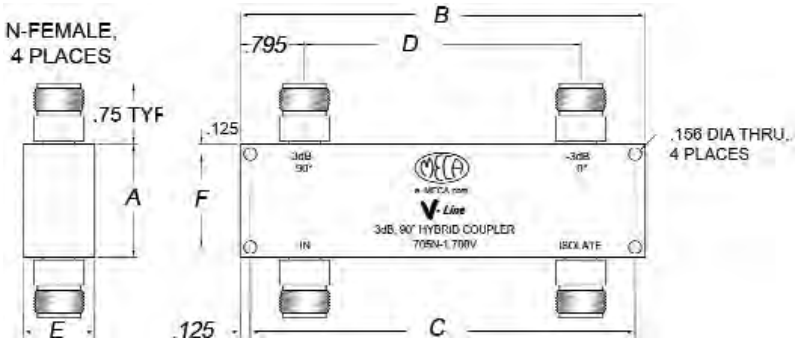
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3dB, 90°, Hybrid Couplers, N, DIN-Female 0.400-2.700 GHz: 705 Series







Drawing	A	B	C	D	E	F
1	1.40	5.00	4.75	3.41	0.88	1.15
2	2.00	7.78	7.53	6.63	1.38	1.75
3	2.00	4.66	4.40	3.50	1.25	1.75
4	2.00	2.90	2.65	1.75	1.25	1.75
5	2.00	7.78	7.53	6.63	1.25	1.75
6	2.00	4.65	4.40	3.50	1.00	1.75
7	2.00	2.90	2.65	1.75	1.00	1.75

A 3 dB, 90° hybrid coupler is a four-port device that is used either to equally split an input signal with a resultant 90° phase shift between output ports or to combine two signals while maintaining high isolation between the ports. MECA's line of 3 dB, 90° hybrid couplers are equipped with 7/16 DIN-Female or N-Female connectors and a rugged aluminum housing coated with a RoHS compliant iridite finish for long lasting, reliable performance. Made in USA and offer low insertion loss and excellent VSWR.

7/16 DIN									
Catalog Number	Frequency (GHz)	Power (W)	Coupling Variation (Total)	Isolation (Typ)	Insertion Loss (dB)	VSWR (Max)	Phase Balance (degrees)	Weight (lb)	Outline Drawing
H705D-0.460	0.400 - 0.520	500	3 dB ± 0.3 dB	30 dB	0.3 Max	1.15:1	3	2.95	2
H705D-0.900	0.800 - 1.000	500	3 dB ± 0.3 dB	25 dB	0.3 Max	1.15:1	3	1.50	3
H705D-1.950	1.700 - 2.200	500	3 dB ± 0.3 dB	20 dB	0.3 Max	1.25:1	3	1.09	4

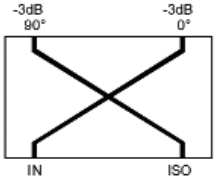
N-Female									
Catalog Number	Frequency (GHz)	Power (W)	Coupling Variation (Total)	Isolation (Typ)	Insertion Loss (dB)	VSWR (Max)	Phase Balance (degrees)	Weight (oz)	Outline Drawing
705N-1.700V	0.700 - 2.700	120	3 dB ± 0.7 dB	20 dB	0.7 Max	1.30:1	5	10.00	1
H705N-0.460-M01	0.400 - 0.520	500	3 dB ± 0.3 dB	30 dB	0.3 Max	1.15:1	3	18.02	5
H705N-0.900	0.800 - 1.000	500	3 dB ± 0.3 dB	25 dB	0.3 Max	1.15:1	3	14.89	6
H705N-1.950	1.700 - 2.200	500	3 dB ± 0.3 dB	22 dB	0.3 Max	1.20:1	3	10.28	7

Common Applications

Carriers are often faced with the challenge of adding next generation services while trying to keep CAPX equipment costs low. An economical solution to this problem is to combine two transmitters with a hybrid coupler to share one antenna, thus freeing up another antenna for the overlay. The hybrid coupler provides excellent isolation between the receivers and group delay is extremely small having no effect on current receiver calibration or operation. Hybrid couplers can also be used to split signals from tower top amplifiers to BTS receivers (remember mismatches on the input side have no effect on the output ports). For in-building distribution systems, hybrids are useful in carrying multiple carrier inputs because the high degree of isolation between the two output ports and the two input ports without unwanted interaction between carriers.

Notes:

1. Indoor use only
2. RoHS compliant
3. 50 ohm nominal impedance standard
4. DC pass between IN - 0º and between ISO - 90º
5. Operating temperature is from -55° C to +85° C
6. 705 Series has a peak power rating of 3 kW, H705N Series is rated at 10 kW



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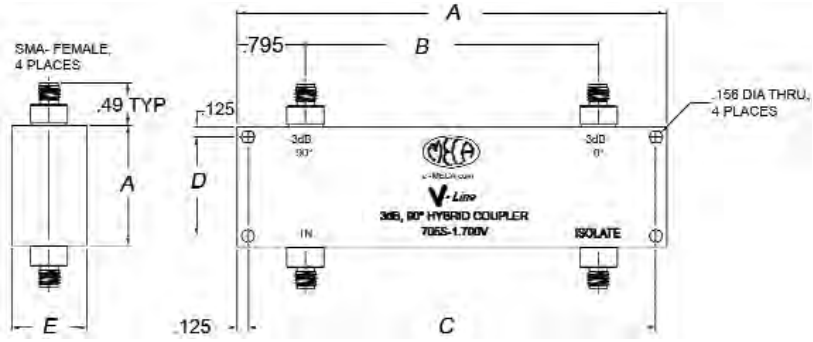
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3dB, 90°, Hybrid Couplers, SMA-Female 0.400-18.000 GHz: 705S Series









Drawing	A	B	C	D	E	F
1	1.15	0.66	-	3.14	0.38	0.50
2	1.00	0.50	-	3.14	0.38	0.50
3	1.00	0.50	-	3.92	0.38	0.58
4	5.00	3.41	-	1.15	0.88	1.40
5	2.00	4.65	4.40	3.50	1.00	2.00
6	2.00	2.90	2.65	1.75	1.00	2.00

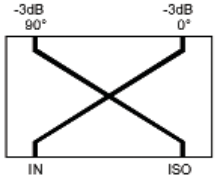
A 3 dB, 90° hybrid coupler is a four-port device that is used either to equally split an input signal with a resultant 90° phase shift between output ports or to combine two signals while maintaining high isolation between the ports. MECA's line of 3 dB, 90° hybrid couplers are equipped with SMA-Female connectors and a rugged aluminum housing coated with a RoHS compliant iridite finish for long lasting, reliable performance. Made in USA and offer low insertion loss and excellent VSWR.

SMA-Female									
Catalog Number	Frequency (GHz)	Power (W)	Coupling Variation (Total)	Isolation (Typ)	Insertion Loss (dB)	VSWR (Max)	Phase Balance (degrees)	Weight (oz)	Outline Drawing
705S-1.700V	0.700 - 2.700	100	3 dB ± 0.7 dB	25 dB	0.7 Max	1.30:1	5	9.83	4
H705S-0.900	0.800 - 1.000	100	3 dB ± 0.3 dB	25 dB	0.3 Max	1.15:1	3	13.18	5
H705S-1.950	1.700 - 2.200	100	3 dB ± 0.3 dB	25 dB	0.3 Max	1.20:1	3	10.20	6

SMA-Female									
Catalog Number	Frequency (GHz)	Power (W)	Coupling Variation (Total)	Isolation (Typ)	Insertion Loss (dB)	VSWR (Max)	Phase Balance (degrees)	Weight (oz)	Outline Drawing
705S-3.000	2.000-4.000	50	3.1 dB ± 0.6 dB	22 dB	0.3 Max	1.20:1	90 ± 2.0	0.64	1
705S-3.900	2.600-5.200	50	3.1 dB ± 0.6 dB	20 dB	0.3 Max	1.25:1	90 ± 2.0	0.55	2
705S-6.000	4.000-8.000	50	3.2 dB ± 0.7 dB	18 dB	0.4 Max	1.25:1	90 ± 3.0	0.55	2
705S-9.700	7.000-12.400	50	3.2 dB ± 0.7 dB	18 dB	0.5 Max	1.30:1	90 ± 4.0	0.55	2
705S-11.750	7.500-16.000	50	3.4 dB ± 0.9 dB	15 dB	0.6 Max	1.40:1	90 ± 4.0	0.55	3
705S-15.000	12.000-18.000	50	3.4 dB ± 1.0 dB	15 dB	0.7 Max	1.40:1	90 ± 4.0	0.55	3

Common Applications

Carriers are often faced with the challenge of adding next generation services while trying to keep CAPX equipment costs low. An economical solution to this problem is to combine two transmitters with a hybrid coupler to share one antenna, thus freeing up another antenna for the overlay. The hybrid coupler provides excellent isolation between the receivers and group delay is extremely small having no effect on current receiver calibration or operation. Hybrid couplers can also be used to split signals from tower top amplifiers to BTS receivers (remember mismatches on the input side have no effect on the output ports). For in-building distribution systems, hybrids are useful in carrying multiple carrier inputs because the high degree of isolation between the two output ports and the two input ports without unwanted interaction between carriers.



Notes:

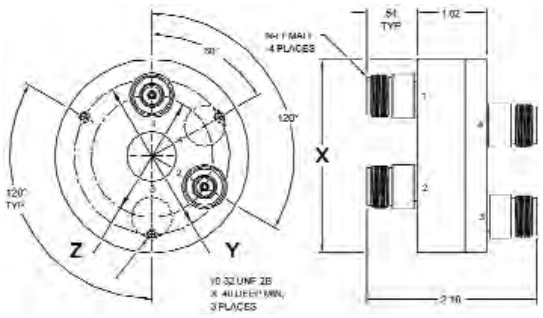
1. Indoor use only
2. RoHS compliant
3. 50 ohm nominal impedance standard
4. DC pass between IN - 0º and between ISO - 90º
5. Operating temperature is from -55° C to +85° C
6. 705S Series has a peak power rating of 3 kW, H705S Series is rated at 10 kW

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3 dB Ring Hybrid, 1KW, DIN/N-Female, 0.810-6.000: 700 Series





A hybrid ring is a four-port device that is used either to equally split an input signal or to sum two combined signals. An additional benefit of the hybrid ring is to alternately provide equally-split but 180 degree phaseshifted output signals.

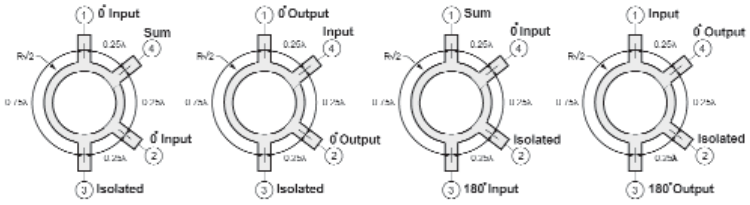
MECA offers a hybrid ring power divider/combiner series designed to cover wireless bands from 0.810-6.000 GHz with an average RF power handling capacity of 1,000 watts (5 kW peak). All models provide a power split of 3.00 ± 0.35 dB over the specified frequency range.

Typical Port Configuration				
Port	**0°/IN-PHASE DIVIDER**	**0°/IN-PHASE COMBINER**	**0° / 180° DIVIDER**	**0° / 180° COMBINER**
1	0° OUTPUT	0° OUTPUT	INPUT	SUM
2	0° OUTPUT	0° OUTPUT	*ISOLATED	*ISOLATED
3	*ISOLATED	*ISOLATED	180° OUTPUT	180° INPUT
4	INPUT	SUM	0° OUTPUT	0° INPUT

7/16 DIN								
Catalog Number	**Frequency (GHz)**	**VSWR (Max)**	**Isolation (dB)**	**Insertion Loss (dB)**	**Z**	**X**	**Y**	**Weight (oz)**
700D-0.900	0.810 - 0.960	1.25:1	22 dB	0.1	7.73	6.366	7.296	47.80
700D-1.850	1.700 - 2.000	1.25:1	22 dB	0.1	4.51	3.05	3.98	32.05

N-Female								
Catalog Number	**Frequency (GHz)**	**VSWR (Max)**	**Isolation (dB)**	**Insertion Loss (dB)**	**Z**	**X**	**Y**	**Weight (oz)**
700-0.900	0.810 - 0.960	1.20:1	22 dB	0.1	6.366	7.53	7.136	35.61
700-1.085	1.020 - 1.150	1.20:1	22 dB	0.1	5.192	6.35	5.962	29.78
700-1.300	1.200 - 1.400	1.20:1	22 dB	0.1	4.316	5.48	5.086	25.26
700-1.550	1.450 - 1.650	1.25:1	22 dB	0.1	3.624	4.78	4.394	21.75
700-1.850	1.700 - 2.000	1.25:1	22 dB	0.1	3.050	4.21	3.820	18.90
700-2.250	2.100 - 2.400	1.25:1	22 dB	0.1	2.530	3.69	3.300	16.35
700-2.450	2.300 - 2.600	1.25:1	22 dB	0.1	2.280	3.44	3.050	15.03
700-2.850	2.700 - 3.000	1.25:1	22 dB	0.1	2.010	3.17	2.780	12.97
700-3.950	3.700 - 4.200	1.25:1	22 dB	0.1	1.430	2.59	2.200	10.75
700-4.700	4.400 - 5.000	1.25:1	22 dB	0.1	1.180	2.34	1.950	8.56
700-5.700	5.400 - 6.000	1.25:1	22 dB	0.1	0.964	2.12	1.734	7.71

Notes:
1. Indoor use only
2. RoHS compliant
3. 50 ohm nominal impedance standard
4. All units have a peak power rating of 5 kW
5. Operating temperature is from -55° C to +85° C



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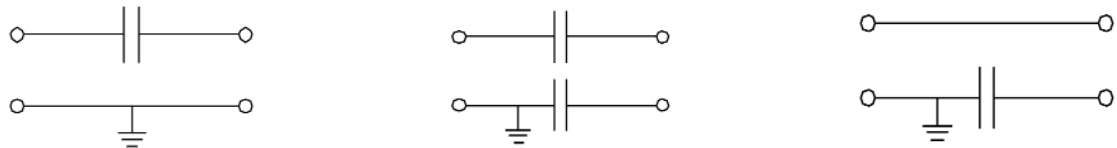
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DC BLOCKS					
Connector	**Configuration**	**Power**	**Frequency (GHz)**	**Catalog Number**	**Page**
N-Type	Inner	100	0.4 - 3.0	500-1N	48
N-Type	Outer	100	0.4 - 18.0	501-1N	48
N-Type	Inner/Outer	100	0.4 - 18.0	502-1N	48
SMA	Inner	80	0.4 - 3.0	500-1S	49
QMA	Inner	80	0.4 - 3.0	500-1Q	49
SMA	Outer	100	0.4 - 18.0	501-1S	49
SMA	Inner/Outer	100	0.4 - 18.0	502-1S	49
BNC	Inner	100	0.4 - 3.0	500-1B	50
BNC	Outer	100	0.4 - 4.0	501-1B	50
BNC	Inner/Outer	100	0.4 - 4.0	502-1B	50
TNC	Inner	100	0.4 - 3.0	500-1T	51
TNC	Outer	100	0.4 - 18.0	501-1T	51
TNC	Inner/Outer	100	0.4 - 18.0	502-1T	51
7/16 DIN	Inner	500	0.4 - 2.5	590-11	52

RoHS compliant, **INNER, OUTER & INNER/OUTER** DC Blocks cover wireless band applications from 0.400 – 18.000 GHz. Available in N, BNC, TNC, SMA & 7/16 DIN configurations with RF power ratings to 500 watts (2.5 kW peak) and breakdown voltages to 2.5 kV making them ideal for eliminating unwanted DC voltages or surges to tower top amplifiers or sensitive lab equipment.

Most models available STOCK - 2 weeks ARO



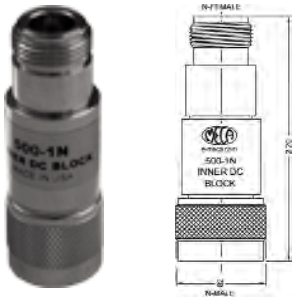


Inner | Inner/Outer | Outer

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DC Blocks, N Type-M/F: 0.4 - 18.0 GHz



500-1N, Inner

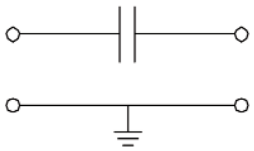


501-1N - Outer

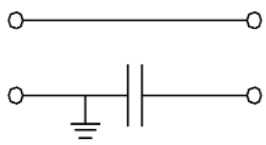


502-1N - Inner/Outer

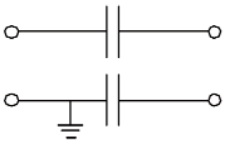
Catalog Number	Config.	Average Power (Watts)	Peak Power (Watts)	Freq. (GHz)	VSWR (Max)	Voltage Rating (Volts)	Insertion Loss (Max)	Length (in) Diameter (in) Weight (g)
500-1N	Inner	100	1000	0.4 - 0.8 0.8 - 3.0	1.40:1 1.20:1	250	0.3 dB	L=2.20, D=0.82, W=80
501-1N	Outer	100	200	0.4 - 3.0 3.0 - 18.0	1.25:1 1.35:1	200	0.6 dB	L=1.91, D=0.50, W=50.9
502-1N	Inner Outer	100	800	0.4 - 3.0 3.0 - 18.0	1.25:1 1.35:1	200	0.6 dB	L=1.91, D=0.50, W=50.9



500-1N



501-1N



502-1N

DC Blocks 06

RoHS compliant, **INNER, OUTER & INNER/OUTER N-Type DC Blocks** cover wireless band applications from 0.400 – 18.000 GHz.

Available in N-type configuration with RF power ratings to 100 watts (1000 W peak) and breakdown voltages to 2.5 kV making them ideal for eliminating unwanted DC voltages or surges to tower top amplifiers or sensitive lab equipment.
Most models available STOCK - 2 weeks ARO. Made in USA.

500-1N MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Albaloy Plate
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	2.85

RoHS Compliant: Yes

501-1N & 502-1N MECHANICAL SPECIFICATIONS	
Connectors	Stainless Steel Passivate
Male Pin	Beryllium Copper Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	High Temperature Plastic
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	1.80

RoHS Compliant: Yes

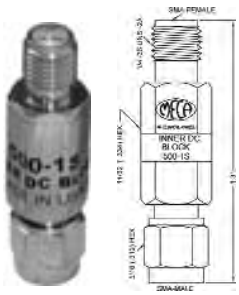
Notes:
1. Indoor use only
2. Units are bi-directional
3. Available in N, SMA, BNC, TNC, QMA and 7/16 DIN

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DC Blocks, SMA-M/F, QMA-M/F: 0.4 - 18.0 GHz



500-1S, Inner



500-1Q Inner/Outer

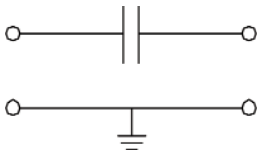


501-1N - Outer

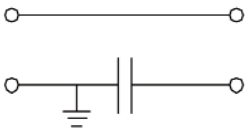


502-1S- Inner/Outer

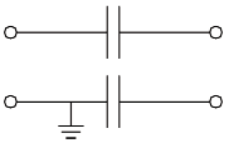
Catalog Number	Config.	Average Power (Watts)	Peak Power (Watts)	Freq. (GHz)	VSWR (Max)	Voltage Rating (Volts)	Insertion Loss (Max)	Length (in) Diameter (in) Weight (g)
500-1S	Inner	80	1000	0.4 - 0.8 0.8 - 3.0	1.40:1 1.20:1	250	0.3 dB	L=1.31, D=0.50, W=62
500-1Q	Inner	80	1000	0.4 - 0.8 0.8 - 3.0	1.40:1 1.20:1	250	0.3 dB	L=1.63, D=0.41, W=~
501-1S	Outer	100	200	0.4 - 3.0 3.0 - 18.0	1.25:1 1.35:1	200	0.5 dB	L=1.20, D=0.50, W=8.2
502-1S	Inner Outer	100	800	0.4 - 3.0 3.0 - 18.0	1.25:1 1.35:1	200	0.5 dB	L=1.91, D=0.50, W=8.2



500-1S / 500-1Q



501-1S



502-1S

RoHS compliant, **INNER, OUTER & INNER/OUTER SMA DC Blocks** cover wireless band applications from 0.400 – 18.000 GHz.

Available in SMA configurations with RF power ratings to 100 watts (1000 W peak) and breakdown voltages to 2.5 kV making them ideal for eliminating unwanted DC voltages or surges to tower top amplifiers or sensitive lab equipment. Most models available STOCK - 2 weeks ARO. Made in USA.

500-1S & 500-1Q MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Albaloy Plate
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	2.20

RoHS Compliant: Yes

501-1S & 502-1S MECHANICAL SPECIFICATIONS	
Connectors	Stainless Steel Passivate
Male Pin	Beryllium Copper Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	High Temperature Plastic
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	2.90

RoHS Compliant: Yes

Notes:
1. Indoor use only
2. Units are bi-directional
3. Available in N, SMA, BNC, TNC, QMA and 7/16 DIN

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DC Blocks, BNC-M/F: 0.4 - 4.0 GHz



500-1B, Inner

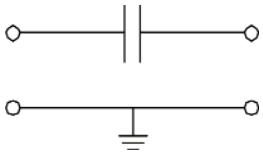


501-1B - Outer

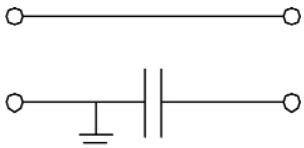


502-1B- Inner/Outer

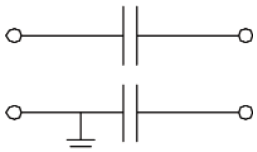
Catalog Number	Config.	Average Power (Watts)	Peak Power (Watts)	Freq. (GHz)	VSWR (Max)	Voltage Rating (Volts)	Insertion Loss (Max)	Length (in) Diameter (in) Weight (g)
500-1B	Inner	100	1000	0.4 - 0.8 0.8 - 3.0	1.40:1 1.20:1	250	0.3 dB	L=1.82, D=0.57, W=62
501-1B	Outer	100	200	0.4 - 4.0	1.25:1	200	0.5 dB	L=1.60, D=0.50, W=20.5
502-1B	Inner Outer	100	800	0.4 - 4.0	1.25:1	200	0.5 dB	L=1.60, D=0.50, W=20.5



500-1B



501-1B



502-1B

DC Blocks 06

RoHS compliant, **INNER, OUTER & INNER/OUTER BNC DC Blocks** cover wireless band applications from 0.400 – 4.0 GHz.

Available in BNC configurations with RF power ratings to 100 watts (1000 W peak) and breakdown voltages to 2.5 kV making them ideal for eliminating unwanted DC voltages or surges to tower top amplifiers or sensitive lab equipment. Most models available STOCK - 2 weeks ARO. Made in USA.

500-1B MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy Plated
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Albaloy Plate
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	2.20

RoHS Compliant: Yes

501-1B & 502-1B MECHANICAL SPECIFICATIONS	
Connectors	Brass Nickel Plated
Male Pin	Brass Gold Plated
Female Pin	Brass Gold Plated
Housing	Brass Nickel Plated
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	0.75

RoHS Compliant: Yes

Notes:
1. Indoor use only
2. Units are bi-directional
3. Available in N, SMA, BNC, TNC, QMA and 7/16 DIN

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DC Blocks, TNC-M/F: 0.4 - 18.0 GHz



500-1T, Inner

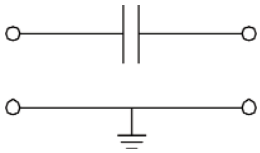


501-1T- Outer

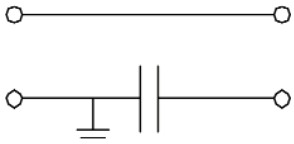


502-1T- Inner/Outer

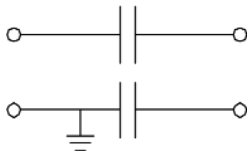
Catalog Number	Config.	Average Power (Watts)	Peak Power (Watts)	Freq. (GHz)	VSWR (Max)	Voltage Rating (Volts)	Insertion Loss (Max)	Length (in) Diameter (in) Weight (g)
500-1T	Inner	100	1000	0.4 - 0.8 0.8 - 3.0	1.40:1 1.20:1	250	0.3 dB	L=1.82, D=0.59, W=62
501-1T	Outer	100	200	0.4 - 3.0 3.0 - 18.0	1.25:1 1.35:1	250	0.75 dB	L=2.07, D=0.50, W=36.4
502-1T	Inner Outer	100	800	0.4 - 3.0 3.0 - 18.0	1.25:1 1.35:1	250	0.75 dB	L=2.07, D=0.50, W=36.4



500-1T



501-1T



502-1T

RoHS compliant, **INNER, OUTER & INNER/OUTER TNC DC Blocks** cover wireless band applications from 0.400 – 18.000 GHz.

Available in TNC configurations with RF power ratings to 100 watts (1000 W peak) and breakdown voltages to 2.5 kV making them ideal for eliminating unwanted DC voltages or surges to tower top amplifiers or sensitive lab equipment. Most models available STOCK - 2 weeks ARO. Made in USA.

500-1T MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy Plated
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Albaloy Plate
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	2.20

RoHS Compliant: Yes

501-1T& 502-1T MECHANICAL SPECIFICATIONS	
Connectors	Stainless Steel Passivate
Male Pin	Beryllium Copper Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	High Temperature Plastic
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
Weight (oz)	130

RoHS Compliant: Yes

Notes:
1. Indoor use only
2. Units are bi-directional
3. Available in N, SMA, BNC, TNC, QMA and 7/16 DIN

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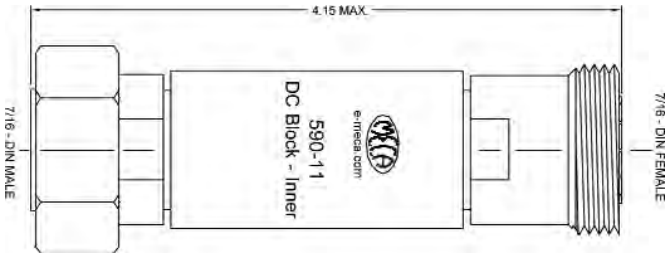
DC Blocks, 7/16 DIN-M/F: 0.4 - 2.5 GHz

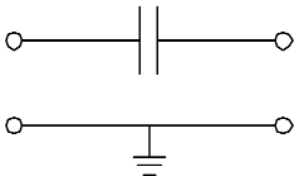


- 500 watts average power (2.5KW peak)
- 2.5kV voltage rating
- Low insertion loss
- Tetra, Cellular, PCS & UMTS applications

Catalog Number	Config.	Average Power (Watts)	Peak Power (Watts)	Freq. (GHz)	VSWR (Max)	Voltage Rating (Volts)	Insertion Loss (Max)	Length (in) Diameter (in) Weight (g)
590-11	Inner	500	2500	0.4 - 4.0 0.8 - 2.5	1.40:1 1.15:1	2500	0.3 dB	L=4.15, D=7/16DIN, W=220

7/16 DIN Inner DC Blocks cover wireless band applications from 0.4 – 2.5 GHz, features RF power ratings of 500 watts (2.5 kW peak) and breakdown voltage to 2.5 kV making them ideal for eliminating unwanted DC voltages or surges to tower top amplifiers or sensitive lab equipment, available STOCK - 2 weeks ARO. Made in USA.





Inner

590-11 MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy Plated
Male Pin	Brass Silver Plate
Female Pin	Beryllium Copper Silver Plate
Housing	Alluminum, RoHS Iridite
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C
PIM	-150 dBc minimum
Weight (Grams)	220

RoHS Compliant: Yes

Notes:
1. Indoor use only
2. Units are bi-directional

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POWER DIVIDER / COMBINER OVERVIEW				
Configuration	**Power**	**Connector**	**Catalog Number**	**Page**
2 & 3-Way	700 Watts	N-Female	Reactive Splitters	54
2 & 3-Way	20 Watts	N, SMA	Tee Series	55
2, 3 & 4-Way	20 Watts	N, SMA	DC Blocking	56
2-Way	40 Watts	SMA-Female	802-2 Series	57
		N, BNC, TNC	802 Series	58
3-Way	40 Watts	SMA-Female	803-2 Series	59
		N, BNC, TNC	803 Series	60
4-Way	40 Watts	SMA-Female	804-2 Series	61
		N, BNC, TNC	804 Series	62
6-Way	40 Watts	SMA-Female	806-2 Series	63
		N, BNC, TNC	806 Series	64
8-Way	40 Watts	SMA-Female	808-2 Series	65
		N, BNC, TNC	808-4 Series	66
9-Way	40 Watts	SMA-Female	809-2 Series	67
		N, BNC, TNC	809 Series	68
12-Way	20 Watts	SMA-Female	812-2 Series	69
		N, BNC, TNC	812 Series	70
16-Way	40 Watts	SMA-Female	816-2 Series	71
		N, BNC, TNC	816 Series	72
2, 3, 4, 8 & 16 Way	75 Watts	N, SMA	M Series	73
2, 3 & 4-Way	100 Watts	N-Female	H Series	74
2, 3 & 4-Way	100 Watts	SMA-Female	H Series	75
2 & 4-Way	100 Watts	7/16 DIN	H Series	76

Power dividers are used in a wide variety of applications and can satisfy almost any requirement where a signal needs to be distributed or combined. MECA's compact, microstrip divider/combiners provide minimal insertion loss while delivering high isolation between output ports with exceptional phase and amplitude balance.

MECA offers a comprehensive selection of 2-way through 16-way power divider/combiners in N, SMA, BNC, TNC and 7/16 DIN connector styles for frequencies from 0.4 to 18.0 GHz for narrow, octave, dual and multi-octave band applications. Our flexibility and expertise allow quick turn-around on your custom applications including specialized frequency bands, high isolation, alternate connector configurations, rack mounting, high power combining and weatherproofing. With immediate access to our Application Engineers, you can choose the best product solutions for your specific needs.

Theoretical Power Split (dB)							
2-Way	3-Way	4-Way	6-way	8-Way	9-Way	12-Way	16-Way
3.01	4.77	6.02	7.78	9.03	9.54	10.79	12.04

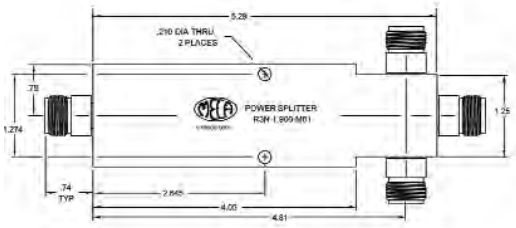
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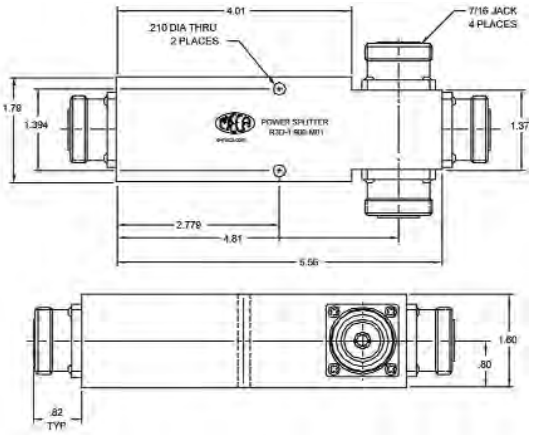
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Reactive Splitters, 700 Watts*, 7/16 DIN, N, SMA, 0.7-2.7 GHz











MECA's unique design eliminates the need for extraneous (often misplaced) mounting hardware when mounted to flat surfaces and also includes a rugged 2" - 5"stainless steel hose clamp (with screws) for mounting to poles.

MECA line of high-power capable (700 watts) reactive RF splitters covering all wireless frequencies from 0.700 - 2.700 GHz. Available in 2-way and 3-way configurations fitted with 7/16 DIN, N or SMA-Female connectors at all ports. Indoor or Outdoor use (IP65). This reactive RF splitter series provides a low loss, equal power split at all output ports while maintaining excellent amplitude and phase balance. MECA's unique design eliminates the need for extraneous (often misplaced) mounting hardware when mounted to flat surfaces but also includes a rugged 2" - 5"stainless steel hose clamp (with screws) for mounting to poles.

Catalog Number	N-Way	Frequency (GHz)	Power Avg. (W)	Insertion Loss (dB)		Amplitude Balance	Phase Balance (degrees) (Max)	VSWR Inputs (GHz)			Weight (oz)
								0.7-0.8	0.8-2.7		
				Typ	Min			Max	Typ	Max	
7/16 DIN											
R2D-1.900-M01	2-Way	0.7-2.7	700	0.30	0.40	0.2	2	1.30:1	1.10:1	1.20:1	26.88
R3D-1.900-M01	3-Way	0.7-2.7	700	0.30	0.40	0.2	3	1.30:1	1.20:1	1.30:1	29.60
N-Female											
R2N-1.900-M01	2-Way	0.7-2.7	500	0.30	0.40	0.2	2	1.30:1	1.10:1	120:1	10.74
R3N-1.900-M01	3-Way	0.7-2.7	500	0.30	0.40	0.2	3	1.30:1	1.20:1	1.30:1	11.49
SMA-Female											
R2S-1.900-M01	2-Way	0.7-2.7	200	0.30	0.40	0.2	2	1.30:1	1.10:1	1.20:1	9.30
R3S-1.900-M01	3-Way	0.7-2.7	200	0.30	0.40	0.2	3	1.30:1	1.20:1	1.30:1	9.95

Notes:
1. For indoor/outdoor use.
2. 50 ohm nominal impedance standard.
3. All output/combiner ports are in-phase (0° difference).
4. Operating temperature from -55° C to +85° C.

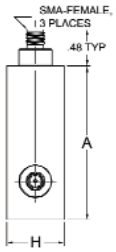
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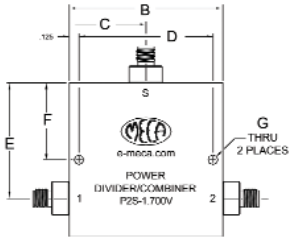
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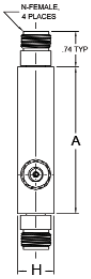
2 & 3-Way, 20 Watts*, N, SMA, 0.7-6.0 GHz: "Tee" Series

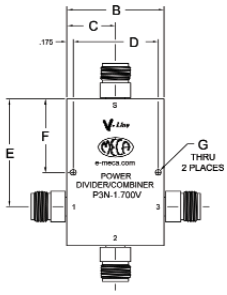












Specially designed for installation ease, these new "Tee" power divider/combiners allow unobstructed access to all connector ports with even the largest coaxial cables. Available in 2-way and 3-way "Tee" configurations with silver-plated N-Female or stainless steel SMA-Female connectors.

Their rugged construction and excellent performance across all wireless bands from 0.7 - 2.7 GHz, 2.4, 4.9 and 5.8 GHz make them ideal for combining and dividing signals for in-building wireless, WiFi, WiMAX and Homeland Security/Public Safety systems. Weatherproof model (IP65) available.

Mechanical Dimensions

Drawing	A	B	C	D	E	F	G	H
1	2.00	2.02	1.10	1.85	1.50	1.00	.225	0.75
2	1.68	1.68	0.84	1.43	0.94	0.37	.125	0.75
3	1.68	1.68	0.94	1.43	0.94	0.42	.125	0.75
4	3.00	2.20	1.10	1.85	1.50	1.05	.225	0.75

All dimensions are in inches.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.** **Higher power (H-Series) combiners listed on page 74.**

Catalog Number	N-Way	Freq. (GHz)	Pwr* (W)	Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
N-Female															
P2N-1.700*V*	2-Way	0.7-2.7	40	25	22	0.40	0.50	0.2	3	1.15:1	1.30:1	1.10:1	1.20:1	5.55	1
P2N-2.450	2-Way	2.4-2.5	20	27	22	0.20	0.30	0.1	3	1.10:1	1.15:1	1.05:1	1.10:1	4.57	2
P2N-5.500	2-Way	4.9-6.0	20	25	20	0.20	0.30	0.1	2	1.20:1	1.25:1	1.10:1	1.20:1	4.57	2
P3N-1.700*V*	3-Way	0.7-2.7	40	22	18	0.20	0.30	0.4	6	1.15:1	1.35:1	1.10:1	1.30:1	7.90	4
P3N-2.450	3-Way	2.4-2.5	20	22	18	0.20	0.30	0.2	3	1.15:1	1.25:1	1.20:1	1.30:1	5.16	3
P3N-5.500	3-Way	4.9-6.0	20	22	18	0.40	0.50	0.2	4	1.20:1	1.25:1	1.20:1	1.25:1	5.16	3
SMA-Female															
P2S-1.700*V*	2-Way	0.7-2.7	40	27	22	0.20	0.30	0.1	2	1.15:1	1.20:1	1.10:1	1.15:1	4.82	1
P2S-2.450	2-Way	2.4-2.5	20	27	22	0.30	0.40	0.1	2	1.15:1	1.25:1	1.10:1	1.20:1	3.84	2
P2S-5.500	2-Way	4.9-6.0	20	27	22	0.40	0.50	0.2	3	1.10:1	1.25:1	1.10:1	1.20:1	3.82	2
P3S-1.700*V*	3-Way	0.7-2.7	40	27	22	0.20	0.30	0.4	6	1.25:1	1.35:1	1.20:1	1.30:1	5.62	4
P3S-2.450	3-Way	2.4-2.5	20	27	22	0.20	0.30	0.2	3	1.15:1	1.25:1	1.15:1	1.25:1	4.17	3
P3S-5.500	3-Way	4.9-6.0	20	22	18	0.40	0.50	0.2	3	1.20:1	1.25:1	1.20:1	1.25:1	4.17	3

Notes:
1. -1.700V indoor use only
2. -2.450 and 5.500 indoor/outdoor
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard

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DC Blocking, 20 Watts*, N, SMA, 0.8-2.2 GHz



MECA introduces a **DC Block Power Divider & Combiner** series covering the 0.800 - 2.200 GHz frequency range for use in all wireless applications from cellular through UMTS. By design, a lumped element power divider blocks DC on all ports; conversely, a microstrip power divider passes DC on all ports. MECA's DC Blocking power dividers utilize microstrip construction with capacitors on all ports except those that are intended to pass DC. Six standard models are available in 2-way, 3-way and 4-way power divider configurations in both N-Female and SMA-Female connector styles. Standard models pass DC between ports S and 2. Also available in BNC & TNC connectors and with All ports blocked.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.** **Higher power (H-Series) combiners listed on page 74.**

Catalog Number	N-Way	Freq. (GHz)	Pwr* (W)	Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
N-Female															
DC802-4-1.500*V*	2-Way	0.8-2.2	20	27	22	0.30	0.40	0.1	2	1.15:1	1.25:1	1.10:1	1.20:1	5.45	Note 7
DC803-4-1.500*V*	3-Way	0.8-2.2	20	20	17	0.50	0.60	0.2	4	1.40:1	1.50:1	1.20:1	1.30:1	8.89	Note 7
DC804-4-1.500*V*	4-Way	0.8-2.2	20	25	20	0.60	0.80	0.2	4	1.25:1	1.35:1	1.15:1	1.25:1	10.01	Note 7
tSMA-Female															
DC802-2-1.500*V*	2-Way	0.8-2.2	20	27	22	0.30	0.40	0.1	2	1.15:1	1.25:1	1.10:1	1.20:1	1.60	Note 7
DC803-2-1.500*V*	3-Way	0.8-2.2	20	30	25	0.40	0.60	0.2	4	1.20:1	1.30:1	1.15:1	1.25:1	2.36	Note 7
DC804-2-1.500*V*	4-Way	0.8-2.2	20	27	22	0.60	0.80	0.2	4	1.20:1	1.30:1	1.10:1	1.20:1	3.70	Note 7

V-Line DC Blocking Combiners cover all wireless bands from 0.8 - 2.2 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

MECA's **PDB-1 Kit** is specially designed for use with all our 2, 3 and 4-way -1.500V & -1.700V Power Divider/Combiners. This kit makes for effortless mounting our popular ***V-Line*** Power Divider/Combiners to walls, ceilings or rack assemblies for your BTS & IBW. 4-40 screws included.



PDB-1 Mounting Bracket
PDB-1 Kit available for effortless mounting to walls, ceilings or rack assemblies

Notes:
1. Indoor use only
2. Also avaiable in BNC & TNC Female
3. Insertion loss above theoretical split
4. 50 ohm nominal impedance standard
5. All output/combiner ports are in-phase (0° difference)
6. Operating temperature from -55° C to +85° C
7. Same mechanical dimemsions as corresponding ***V*-Line** model

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

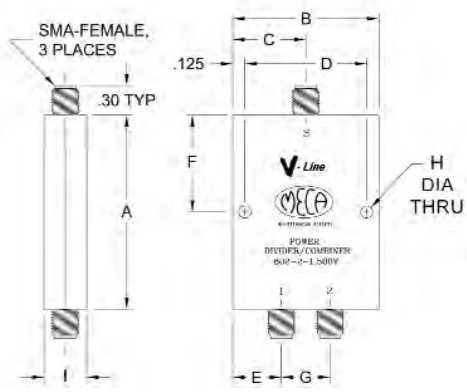
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2-Way, 40 Watts*, SMA-Female, 0.4-18.0 GHz: 802-2 Series







MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.4 to 18.0 GHz for narrow, octave and multi-octave band applications, and are equipped with stainless steel SMA-Female connectors, gold-plated contact pins and a rugged aluminum housing for long lasting, reliable performance. Weather resistant models available.

Mechanical Dimensions

Drawing	A	B	C	D	E	F	G	H	I
1	2.00	1.50	0.75	1.250	0.50	1.00	0.50	.125	0.44
2	1.50	1.50	0.75	1.250	0.50	0.75	0.50	.125	0.44
3	2.00	1.50	0.75	1.250	0.50	1.00	0.50	.125	0.44
4	0.79	1.04	0.52	0.812	.270	0.40	0.50	.104	0.40
5	2.00	2.00	1.00	1.750	0.50	1.00	1.00	.125	0.75
6	1.62	1.00	0.50	0.85	0.25	0.75	0.50	1.05	0.38
7	1.75	2.00	1.00	1.75	0.50	0.88	1.00	1.50	0.75

All dimensions are in inches.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.** **Higher power (H-Series) combiners listed on page 74.**

Catalog Number	Freq. (GHz)	Pwr* (W)	Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (deg.) (Max)	VSWR				Weight (oz)	Outline Drawing
									Input		Output			
			Typ	Min	Typ	Min			Typ	Min	Typ	Min		
802-2-0.600-M01	0.4-0.8	20	27	22	0.20	0.30	0.1	2	1.15:1	1.20:1	1.10:1	1.15:1	3.73	5
802-2-1.500*V*	0.8-2.2	20	27	22	0.30	0.40	0.1	2	1.15:1	1.25:1	1.10:1	1.20:1	1.61	1
802-2-1.700*V*	0.7-2.7	40	27	22	0.40	0.50	0.2	3	1.10:1	1.25:1	1.10:1	1.20:1	3.43	7
802-2-2.500	1.0-4.0	20	25	20	0.40	0.50	0.2	2	1.25:1	1.35:1	1.15:1	1.25:1	1.62	3
802-2-3.000	2.0-4.0	20	25	22	0.20	0.30	0.1	2	1.15:1	1.25:1	1.10:1	1.15:1	1.25	2
802-2-6.000	4.0-8.0	20	22	20	0.20	0.30	0.2	4	1.20:1	1.30:1	1.15:1	1.25:1	0.72	4
802-2-9.700	7.0-12.4	20	21	19	0.40	0.50	0.2	4	1.30:1	1.40:1	1.25:1	1.35:1	0.72	4
802-2-15.000	12.0-18.0	20	20	18	0.50	0.60	0.3	6	1.30:1	1.40:1	1.25:1	1.35:1	0.72	4
802-2-11.500-M01	4.0-18.0	20	20	18	0.40	0.50	0.3	6	1.30:1	1.40:1	1.25:1	1.35:1	0.72	4
802-2-10.000	2.0-18.0	20	19	17	~	1.00	0.3	5	1.50:1	~	1.50:1	~	1.18	6

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

Notes:
1. Indoor use only
2. Insertion loss above 3.01 dB theoretical 2-way power divider split
3. All output/power combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard



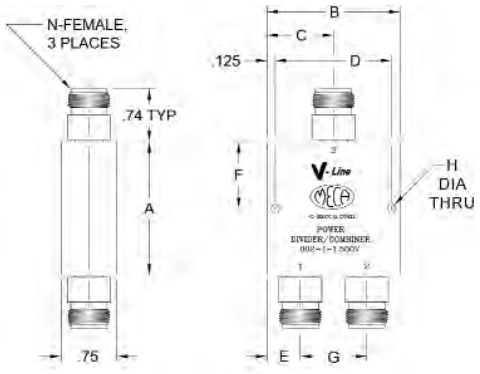
PDB-1 Mounting Bracket
PDB-1 Kit available for effortless mounting to walls, ceilings or rack assemblies

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2-Way, 40 Watts*, N, BNC, TNC, 0.4-4.2 GHz: 802 Series





Mechanical Dimensions								
Drawing	A	B	C	D	E	F	G	H
1	2.00	2.00	1.00	1.75	0.50	1.00	1.00	.125
2	1.75	2.00	1.00	1.75	0.50	0.88	1.00	.150
3	2.00	2.00	1.00	1.75	0.50	1.00	1.00	.125

All dimensions are in inches.

MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.4 to 4.2 GHz for narrow, octave and multi-octave band applications, and are equipped with N, BNC or TNC connectors and a rugged aluminum housing for long lasting reliable performance. Weatherproof models (IP65) available.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.** **Higher power (H-Series) combiners listed on page 74.**

Catalog Number	Connector	Freq. (GHz)	Pwr* (W)	Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
802-4-0.600	N	0.4-0.8	20	27	22	0.20	0.30	0.1	2	1.15:1	1.20:1	1.10:1	1.15:1	5.43	1
802-4-1.500*V*	N	0.8-2.2	20	27	22	0.30	0.40	0.1	2	1.15:1	1.25:1	1.10:1	1.20:1	5.45	1
802-4-1.700*V*	N	0.7-2.7	40	27	22	0.40	0.50	0.2	3	1.10:1	1.25:1	1.10:1	1.20:1	5.15	2
802-6-1.700*V*	TNC	0.7-2.7	40	27	22	0.40	0.50	0.2	3	1.10:1	1.25:1	1.10:1	1.20:1	3.49	2
802-8-1.700*V*	BNC	0.7-2.7	40	27	22	0.40	0.50	0.2	3	1.20:1	1.30:1	1.15:1	1.25:1	4.07	2
802-4-3.100	N	2.0-4.2	20	25	22	0.30	0.40	0.1	3	1.20:1	1.30:1	1.15:1	1.25:1	5.42	3

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

Notes:
1. Indoor use only. Weatherproof model available by request
2. Insertion loss above 3.01 dB theoretical 2-way power divider split
3. All output/power combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard



PDB-1 Mounting Bracket
PDB-1 Kit available for effortless mounting to walls, ceilings or rack assemblies

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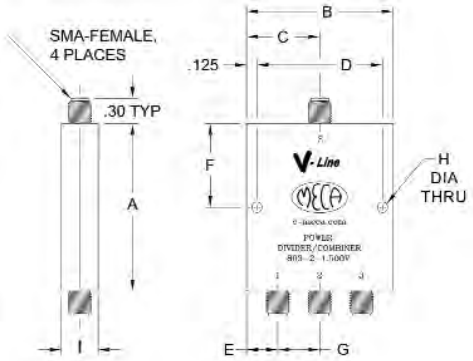
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3-Way, 40 Watts*, SMA-Female, 0.4-4.0 GHz: 803-2 Series







MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.4 to 4.0 GHz for narrow, octave and multi-octave band applications, and are equipped with stainless steel SMA-Female connectors, gold-plated contact pins and a rugged aluminum housing for long lasting, reliable performance. Weathe resistant models available.

Mechanical Dimensions

Drawing	A	B	C	D	E	F	G	H	I
1	3.00	3.00	1.50	2.75	0.500	1.50	1.00	.156	0.75
2	2.50	1.75	0.88	1.50	0.375	1.25	0.50	.125	0.44
3	1.75	1.75	0.88	1.50	0.375	0.88	0.50	.125	0.44

All dimensions are in inches.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.** **Higher power (H-Series) combiners listed on page 74.**

Catalog Number	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
									Input		Output			
			Typ	Min	Typ	Min			Typ	Min	Typ	Min		
803-2-0.600-M01	0.4-0.8	20	27	22	0.20	0.30	0.2	3	1.20:1	1.30:1	1.10:1	1.15:1	8.63	1
803-2-1.500*V*	0.8-2.2	20	30	25	0.40	0.60	0.2	4	1.20:1	1.30:1	1.15:1	1.25:1	2.36	2
803-2-1.700*V*	0.7-2.7	40	27	22	0.40	0.50	0.2	3	1.10:1	1.25:1	1.10:1	1.20:1	8.65	1
803-2-3.000	2.0-4.0	20	25	22	0.50	0.60	0.3	4	1.30:1	1.40:1	1.20:1	1.30:1	2.02	3

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

MECA's **PDB-1 Kit** is specially designed for use with all our 2, 3 and 4-way -1.500V & -1.700V Power Divider/Combiners. This kit makes for effortless mounting of N, SMA, BNC & TNC versions of our popular ***V-Line*** Power Divider/Combiners to walls, ceilings or rack assemblies for your BTS & IBW projects. Also fits N & SMA versions of our -0.600, -0.600-M01, 1.900, 1.900-M01, -3.000 and -3.100 power dividers. 4-40 screws included.



PDB-1 Mounting Bracket
PDB-1 Kit available for effortless mounting to walls, ceilings or rack assemblies

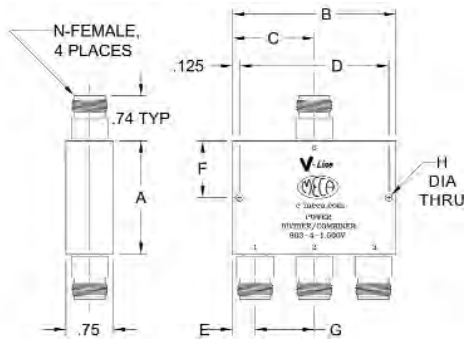
Notes:
1. Indoor use only
2. Insertion loss above 4.77 dB theoretical 3-way power divider split
3. All output/power combiner ports are in-phase (0° difference)
4. Operating temperature range is -55° C to +85° C
5. 50 ohm nominal impedance standard

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

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3-Way, 40 Watts*, N, BNC, TNC, 0.4-4.0 GHz: 803 Series





Mechanical Dimensions								
Drawing	A	B	C	D	E	F	G	H
1	2.00	2.75	1.38	2.50	0.38	1.00	1.00	.125
2	3.00	3.00	1.50	2.75	0.50	1.50	1.00	.156
3	2.50	2.75	1.38	2.50	0.38	1.25	1.00	.125

All dimensions are in inches.

MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.4 to 4.2 GHz for narrow, octave and multi-octave band applications, and are equipped with N, BNC or TNC connectors and a rugged aluminum housing for long lasting reliable performance. Weatherproof models (IP65) available.

***All units rated for 20 watts maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining. Higher power (H-Series) combiners listed on page 74.**

Catalog Number	Connector	Freq. (GHz)	Pwr* (W)	Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
803-4-0.600	N	0.4-0.8	20	27	22	0.30	0.40	0.2	3	1.20:1	1.25:1	1.10:1	1.15:1	10.92	2
803-4-1.500*V*	N	0.8-2.2	20	30	25	0.40	0.60	0.2	4	1.20:1	1.30:1	1.15:1	1.25:1	8.89	3
803-4-1.700*V*	N	0.7-2.7	40	27	22	0.60	0.80	0.4	6	1.25:1	1.10:1	1.15:1	1.15:1	10.95	2
803-6-1.700*V*	TNC	0.7-2.7	40	27	22	0.40	0.50	0.2	3	1.10:1	1.25:1	1.10:1	1.20:1	8.75	2
803-8-1.700*V*	BNC	0.7-2.7	40	27	22	0.40	0.50	0.2	3	1.20:1	1.30:1	1.15:1	1.25:1	8.75	2
803-4-3.100	N	2.0-4.2	20	25	22	0.40	0.50	0.2	4	1.25:1	1.10:1	1.15:1	1.15:1	7.72	1

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

Notes:
1. Indoor use only. Weatherproof model available by request
2. Insertion loss above 4.77 dB theoretical 3-way power divider split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard



PDB-1 Mounting Bracket
PDB-1 Kit available for effortless mounting to walls, ceilings or rack assemblies

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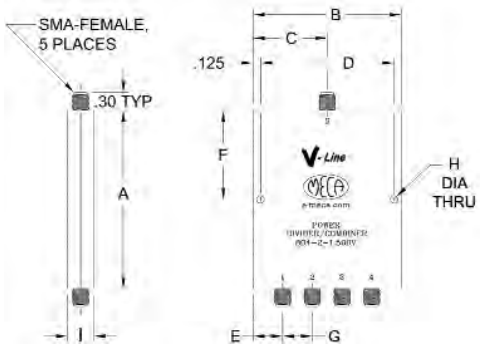
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4-Way, 40 Watts*, SMA-Female, 0.4-18.0 GHz: 804-2 Series







MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.4 to 18.0 GHz for narrow, octave and multi-octave band applications, and are equipped with stainless steel SMA-Female connectors, gold-plated contact pins and a rugged aluminum housing for long lasting, reliable performance. Weather resistant models available.

Mechanical Dimensions

Drawing	A	B	C	D	E	F	G	H	I
1	3.00	2.50	1.25	2.25	0.50	1.50	0.50	.125	0.44
2	2.00	2.50	1.25	2.25	0.50	1.00	0.50	.125	0.44
3	3.00	4.00	2.00	3.75	0.50	1.50	1.00	.156	0.75
4	1.45	1.98	0.82	1.64	0.24	.730	0.50	.137	0.40
5	2.85	2.00	1.00	1.70	0.25	0.95	0.50	1.04	0.38

All dimensions are in inches.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.** **Higher power (H-Series) combiners listed on page 74.**

Catalog Number	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
									Input		Output			
			Typ	Min	Typ	Min			Typ	Min	Typ	Min		
804-2-0.600-M01	0.4-0.8	20	25	20	0.60	0.80	0.2	4	1.20:1	1.30:1	1.10:1	1.20:1	10.09	3
804-2-1.500*V*	0.8-2.2	20	27	22	0.60	0.80	0.2	4	1.20:1	1.30:1	1.10:1	1.20:1	3.70	1
804-2-1.700*V*	0.7-2.7	40	25	20	0.80	1.00	0.2	4	1.25:1	1.40:1	1.15:1	1.25:1	11.32	3
804-2-3.000	2.0-4.0	20	25	20	0.50	0.70	0.2	4	1.20:1	1.30:1	1.10:1	1.20:1	2.62	2
804-2-6.000	4.0-8.0	20	22	20	0.40	0.50	0.3	4	1.40:1	1.45:1	1.25:1	1.30:1	2.23	4
804-2-9.700	7.0-12.4	20	20	19	0.70	0.80	0.4	5	1.50:1	1.55:1	1.30:1	1.40:1	2.23	4
804-2-10.500-M01	12.0-18.0	20	20	18	0.80	1.00	0.4	5	1.50:1	1.55:1	1.30:1	1.40:1	2.23	4
804-2-11.500-M01	4.0-18.0	20	20	18	0.80	1.00	0.5	5	1.50:1	1.55:1	1.30:1	1.40:1	2.23	4
804-2-15.000	12.0-18.0	20	20	18	0.80	1.00	0.4	5	1.50:1	1.55:1	1.30:1	1.40:1	2.24	4
804-2-10.000	2.0-18.0	20	17	15	1.80	2.00	0.6	6	1.50:1	1.60:1	1.40:1	1.50:1	3.79	5

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

Notes:
1. Indoor use only
2. Insertion loss above 6.02 dB theoretical 4-way power divider split
3. All output/power combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard



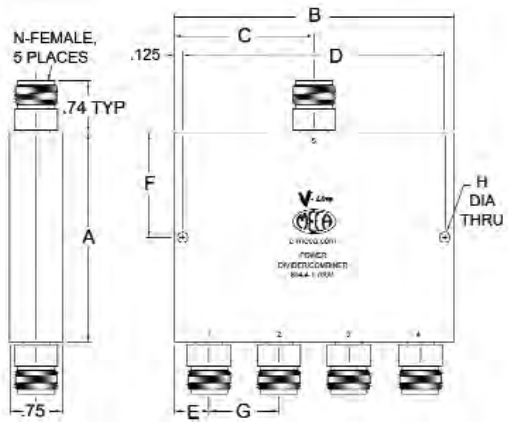
PDB-1 Mounting Bracket
PDB-1 Kit available for effortless mounting to walls, ceilings or rack assemblies

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4-Way, 40 Watts*, N, BNC, TNC, 0.4-4.0 GHz: 804 Series





MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.4 to 4.2 GHz for narrow, octave and multi-octave band applications, and are equipped with N, BNC or TNC connectors and a rugged aluminum housing for long lasting reliable performance. Weatherproof models (IP65) available.

Mechanical Dimensions								
Drawing	A	B	C	D	E	F	G	H
1	3.00	4.00	2.00	3.75	0.50	1.50	1.00	1.25
2	2.00	4.00	2.00	3.75	0.50	1.00	1.00	.125
3	3.00	4.00	2.00	3.75	0.50	1.50	1.00	.156

All dimensions are in inches.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.** **Higher power (H-Series) combiners listed on page 74.**

Catalog Number	Connector	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
804-4-0.600	N	0.4-0.8	20	25	20	0.60	0.80	0.2	4	1.20:1	1.30:1	1.10:1	1.20:1	12.95	1
804-4-1.500*V*	N	0.8-2.2	20	27	22	0.60	0.80	0.2	4	1.25:1	1.35:1	1.15:1	1.25:1	10.01	2
804-4-1.700*V*	N	0.7-2.7	40	25	20	0.80	1.00	0.2	4	1.25:1	1.40:1	1.15:1	1.25:1	14.15	3
804-6-1.700*V*	TNC	0.7-2.7	40	25	20	0.80	1.00	0.2	4	1.25:1	1.40:1	1.15:1	1.25:1	12.35	3
804-8-1.700*V*	BNC	0.7-2.7	40	25	20	0.80	1.00	0.2	4	1.25:1	1.40:1	1.15:1	1.25:1	12.35	3
804-4-3.100	N	2.0-4.2	20	25	20	0.60	0.80	0.2	4	1.25:1	1.35:1	1.15:1	1.25:1	10.01	2

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty

Notes:
1. Indoor use only. Weatherproof models available by request
2. Insertion loss above 6.02 dB theoretical 4-way power divider split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard



PDB-1 Mounting Bracket
PDB-1 Kit available for effortless mounting to walls, ceilings or rack assemblies

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

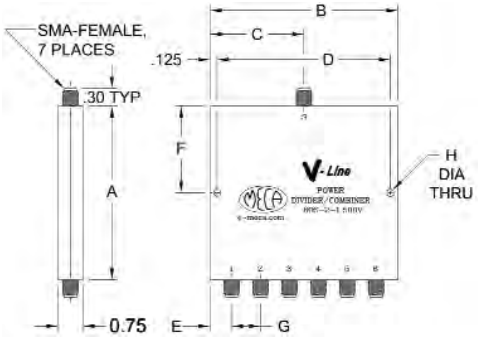
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6-Way, 40 Watts*, SMA-Female, 0.4-4.0 GHz: 806-2 Series







MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.7 to 4.0 GHz for narrow, octave and multi-octave band applications, and are equipped with stainless steel SMA-Female connectors, gold-plated contact pins and a rugged aluminum housing for long lasting, reliable performance. Weather resistant models available.

Mechanical Dimensions

Drawing	A	B	C	D	E	F	G	H	I
1	3.50	3.25	1.63	3.00	0.38	1.75	0.50	.125	0.44
2	3.25	6.00	3.00	5.75	0.50	1.63	1.00	.156	0.75
3	2.50	3.25	1.62	3.00	0.38	1.75	0.50	.125	0.44

All dimensions are in inches.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.**

Catalog Number	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
									Input		Output			
			Typ	Min	Typ	Min			Typ	Min	Typ	Min		
806-2-1.500*V*	0.8-2.2	20	30	25	0.60	0.80	0.2	4	1.25:1	1.35:1	1.10:1	1.20:1	6.44	1
806-2-1.700*V*	0.7-2.7	40	25	20	0.80	1.20	0.4	8	1.30:1	1.65:1	1.20:1	1.35:1	17.44	2
806-2-3.000	2.0-4.0	20	25	20	0.60	0.80	0.2	4	1.30:1	1.40:1	1.20:1	1.30:1	4.64	3

V-Line Power Divider/Combiners cover all wireless bands from 0.7- 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

MECA's **PDB-2 Kit** is specially designed for use with all our 6 & 8 way -1.500V, -1.700V & 3.000 Power Divider/Combiners. This kit makes for effortless mounting of N, SMA, BNC & TNC versions of our popular ***V-Line*** Power Divider/Combiners to walls, ceilings or rack assemblies for your BTS & IBW projects. 4-40 screws included.



PDB-2 Mounting Bracket

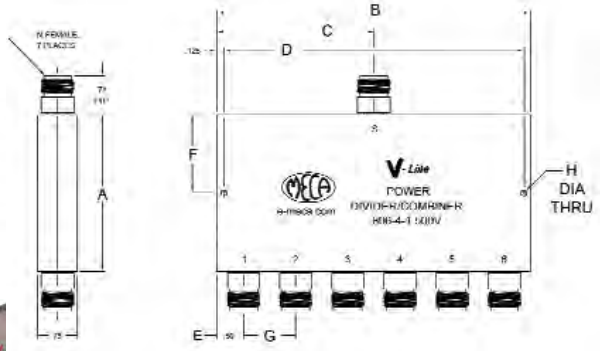
Notes:
1. Indoor use only
2. Insertion loss above 7.78 dB theoretical 6-way power divider split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

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6-Way, 40 Watts*, N, BNC, TNC, 0.8-4.0 GHz: 806 Series





Mechanical Dimensions								
Drawing	A	B	C	D	E	F	G	H
1	3.00	6.00	3.00	5.75	0.50	1.50	1.00	.125
2	3.25	6.00	3.00	5.75	0.50	1.63	1.00	.156
3	2.00	6.00	3.00	5.60	0.50	1.00	1.00	.265

All dimensions are in inches.

MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.4 to 4.2 GHz for narrow, octave and multi-octave band applications, and are equipped with N, BNC or TNC connectors and a rugged aluminum housing for long lasting reliable performance. Weatherproof models (IP65) available.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.**

Catalog Number	Connector	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
806-4-1.500*V*	N	0.8-2.2	20	30	25	0.60	0.80	0.2	4	1.25:1	1.35:1	1.10:1	1.20:1	20.16	1
806-4-1.700*V*	N	0.7-2.7	40	25	20	0.80	1.20	0.4	8	1.30:1	1.65:1	1.20:1	1.35:1	21.12	2
806-6-1.700*V*	TNC	0.7-2.7	40	25	20	0.80	1.20	0.4	8	1.30:1	1.65:1	1.20:1	1.35:1	21.12	2
806-8-1.700*V*	BNC	0.7-2.7	40	25	20	0.80	1.20	0.4	8	1.30:1	1.65:1	1.20:1	1.35:1	21.12	2
806-4-3.100	N	2.0-4.2	20	25	20	0.60	0.80	0.2	4	1.30:1	1.40:1	1.20:1	1.30:1	15.64	3

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

Notes:
1. Indoor use only. Weatherproof models available by request
2. Insertion loss above 7.78 dB theoretical 6-way power divider split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard



PDB-2 Mounting Bracket
PDB-2 Kit available for effortless mounting to walls, ceilings or rack assemblies.

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

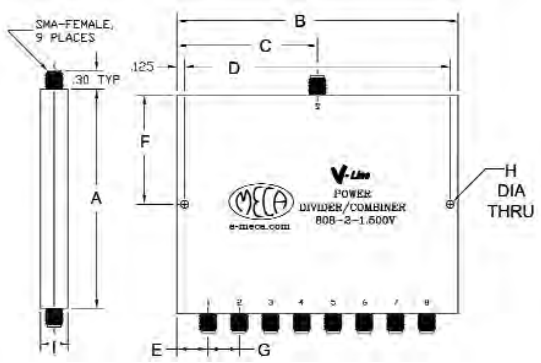
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8-Way, 40 Watts*, SMA-Female, 0.7-8.0 GHz: 808-2 Series







Mechanical Dimensions									
Drawing	A	B	C	D	E	F	G	H	I
1	3.50	4.50	2.25	4.25	0.50	1.75	0.50	.125	0.44
2	3.00	8.00	4.00	7.75	0.50	1.50	1.00	.156	0.75
3	2.50	4.50	2.25	4.25	0.50	1.25	0.50	.125	0.44
4	2.45	5.20	2.60	4.95	0.50	0.48	0.60	.125	0.38

All dimensions are in inches.

MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.7 to 8.0 GHz for narrow, octave and multi-octave band applications, and are equipped with stainless steel SMA-Female connectors, gold-plated contac tpins and a rugged aluminum housing for long lasting, reliable performance. Weather resistant models available.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.**

Catalog Number	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
									Input		Output			
			Typ	Min	Typ	Min			Typ	Min	Typ	Min		
808-2-1.500*V*	0.8-2.2	20	27	22	0.20	0.30	0.1	2	1.15:1	1.20:1	1.10:1	1.15:1	7.30	1
808-2-1.700*V*	0.7-2.7	20	27	22	0.80	1.20	0.2	6	1.20:1	1.40:1	1.10:1	1.20:1	21.60	2
808-2-3.000	2.0-4.0	20	25	20	0.20	0.50	0.1	2	1.10:1	1.15:1	1.10:1	1.15:1	6.87	3
808-2-6.000	4.0-8.0	20	27	20	0.20	0.50	0.1	2	1.15:1	1.20:1	1.10:1	1.15:1	8.42	4

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

MECA's **PDB-2 Kit** is specially designed for use with all our 6 & 8 way -1.500V, -1.700V & 3.000 Power Divider/Combiners. This kit makes for effortless mounting of N, SMA, BNC & TNC versions of our popular ***V-Line*** Power Divider/Combiners to walls, ceilings or rack assemblies for your BTS & IBW projects. 4-40 screws included.



PDB-2 Mounting Bracket

Notes:
1. Indoor use only
2. Insertion loss above 9.03 dB theoretical 8-way power divider split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

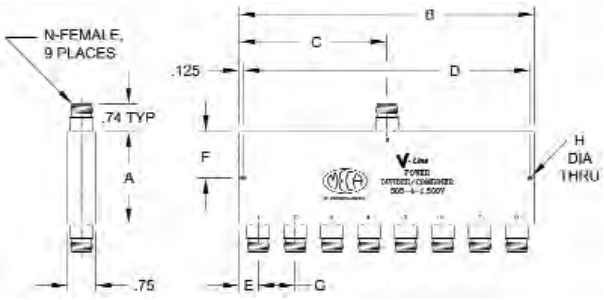
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8-Way, 40 Watts*, N, BNC, TNC, 0.7-4.2 GHz: 808 Series



Mechanical Dimensions								
Drawing	A	B	C	D	E	F	G	H
1	2.50	8.00	4.00	7.75	0.50	1.25	1.00	.125
2	3.00	8.00	4.00	7.75	0.50	1.50	1.00	.150
3	2.50	8.00	4.00	7.75	0.50	1.25	1.00	.156

All dimensions are in inches.



MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.7 to 4.2 GHz for narrow, octave and multi-octave band applications, and are equipped with N, BNC or TNC connectors and a rugged aluminum housing for long lasting reliable performance. Weatherproof models (IP65) available.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.**

Catalog Number	Connector	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
808-4-1.500*V*	N	0.8-2.2	20	27	22	0.80	1.20	0.2	8	1.25:1	1.35:1	1.10:1	1.20:1	21.60	1
808-4-1.700*V*	N	0.7-2.7	40	25	20	1.00	1.40	0.3	8	1.30:1	1.65:1	1.15:1	1.25:1	26.72	2
808-6-1.700*V*	TNC	0.7-2.7	40	25	20	1.00	1.40	0.3	8	1.30:1	1.62:1	1.15:1	1.25:1	23.20	2
808-8-1.700*V*	BNC	0.7-2.7	40	25	20	1.00	1.40	0.3	8	1.30:1	1.65:1	1.25:1	1.40:1	23.20	2
808-4-3.100	N	2.0-4.2	20	27	22	1.20	1.50	0.3	8	1.25:1	1.35:1	1.10:1	1.20:1	26.40	3

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

Notes:
1. Indoor use only. Weatherproof models available by request
2. Insertion loss above 9.03 dB theoretical 8-way power divider split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard



PDB-2 Mounting Bracket
PDB-2 Kit available for effortless mounting to walls, ceilings or rack assemblies.

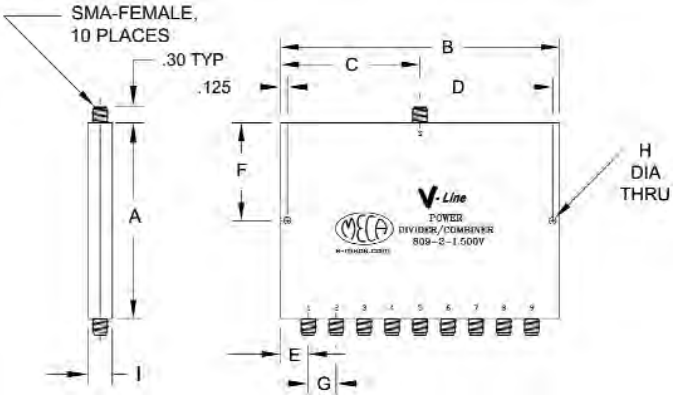
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9-Way, 40 Watts*, SMA-Female, 0.8-4.2 GHz: 809-2 Series







Mechanical Dimensions									
Drawing	A	B	C	D	E	F	G	H	I
1	4.50	5.00	2.50	4.75	0.50	2.25	0.50	.156	0.44
2	5.50	9.00	4.50	8.75	0.50	0.125	1.00	.156	0.75
3	3.00	4.75	2.38	4.50	0.38	1.50	0.50	1.56	0.44

All dimensions are in inches.

MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.7 to 4.2 GHz for narrow, octave and multi-octave band applications, and are equipped with stainless steel SMA-Female connectors, gold-plated contact pins and a rugged aluminum housing for long lasting, reliable performance. Weather resistant models available.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.**

Catalog Number	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
									Input		Output			
			Typ	Min	Typ	Min			Typ	Min	Typ	Min		
809-2-1.500*V*	0.8-2.2	20	25	20	1.00	1.20	0.4	8	1.30:1	1.40:1	1.10:1	1.20:1	12.23	1
809-2-1.700*V*	0.7-2.7	40	22	17	1.20	1.60	0.4	10	1.40:1	1.50:1	1.25:1	1.35:1	49.90	2
809-2-3.100	2.0-4.2	20	25	22	0.80	1.20	0.3	8	1.30:1	1.40;1	1.15:1	1.25:1	9.72	3

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

Notes:
1. Indoor use only
2. Insertion loss above 9.54 dB theoretical 9-way power divider split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

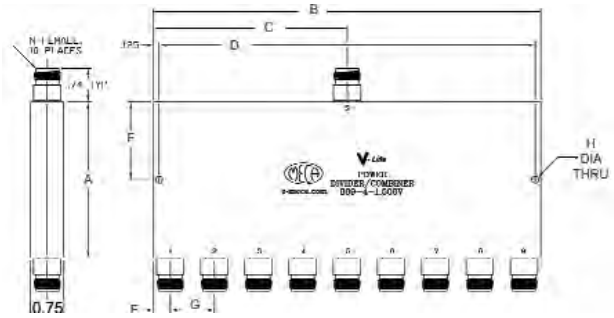
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9-Way, 40 Watts*, N, BNC, TNC, 0.7-4.2 GHz: 809 Series









Mechanical Dimensions								
Drawing	A	B	C	D	E	F	G	H
1	5.50	9.00	4.50	8.75	0.50	.125	1.00	.156
2	3.00	8.75	4.38	8.50	0.38	1.50	1.00	.156

All dimensions are in inches.

MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.7 to 4.2 GHz for narrow, octave and multi-octave band applications, and are equipped with N, BNC or TNC connectors and a rugged aluminum housing for long lasting reliable performance. Weatherproof models (IP65) available.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.**

Catalog Number	Connector	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
809-4-1.700***V***	N	0.7-2.7	40	22	17	1.2	1.6	0.4	10	1.04:1	1.05:1	1.25	1.35	53.40	1
809-6-1.700***V***	TNC	0.7-2.7	40	22	17	1.2	1.6	0.4	10	1.04:1	1.55:1	1.30	1.40:1	49.90	1
809-8-1.700***V***	BNC	0.7-2.7	40	20	16	1.4	1.8	0.5	12	1.04:1	1.55:1	1.04:1	1.08:1	49.90	1
809-4-3.100	N	2.0-4.2	20	25	22	0.90	1.30	0.3	8	1.35:1	1.45:1	1.15:1	1.25:1	53.10	2

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

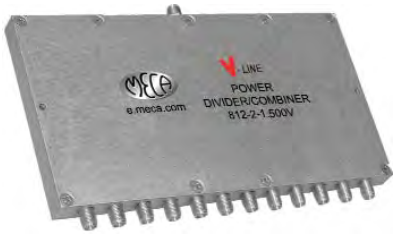
Notes:
1. Indoor use only. Weatherproof models available by request
2. Insertion loss above 9.54 dB theoretical 9-way power divider split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard

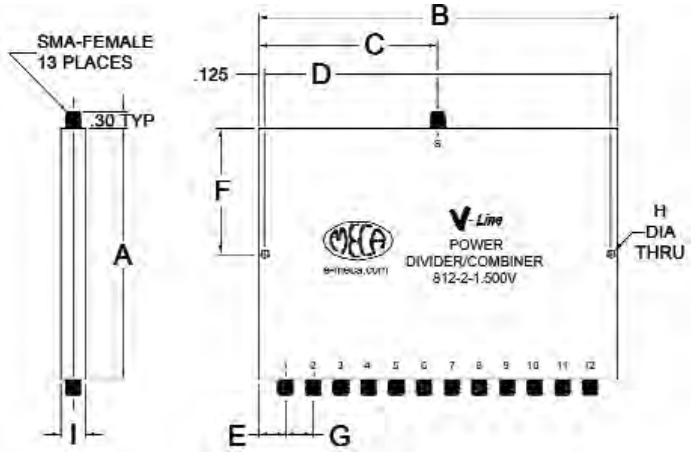
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12-Way, 40 Watts*, SMA-Female, 0.8-4.2 GHz: 812-2 Series







Mechanical Dimensions									
Drawing	A	B	C	D	E	F	G	H	I
1	4.50	6.50	3.25	6.25	0.50	2.25	0.50	.156	0.44
2	3.50	12.00	6.00	11.40	0.50	1.75	1.00	.265	0.81
3	2.50	6.50	3.25	6.25	0.50	1.25	0.50	.156	0.50

All dimensions are in inches.

MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.7 to 4.2 GHz for narrow, octave and multi-octave band applications, and are equipped with stainless steel SMA-Female connectors, gold-plated contact pins and a rugged aluminum housing for long lasting, reliable performance. Weather resistant models available.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.**

Catalog Number	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
									Input		Output			
			Typ	Min	Typ	Min			Typ	Min	Typ	Min		
812-2-1.500*V*	0.8-2.2	20	30	25	1.00	1.20	0.3	8	1.30:1	1.40:1	1.15:1	1.25:1	14.26	1
812-2-1.700*V*	0.7-2.7	40	23	18	1.2	1.7	0.8	12	1.35	1.50	1.25	1.40	44.00	2
812-2-3.100	2.0-4.2	20	25	22	1.00	1.20	0.3	8	1.30:1	1.40:1	1.15:1	1.25:1	10.78	3

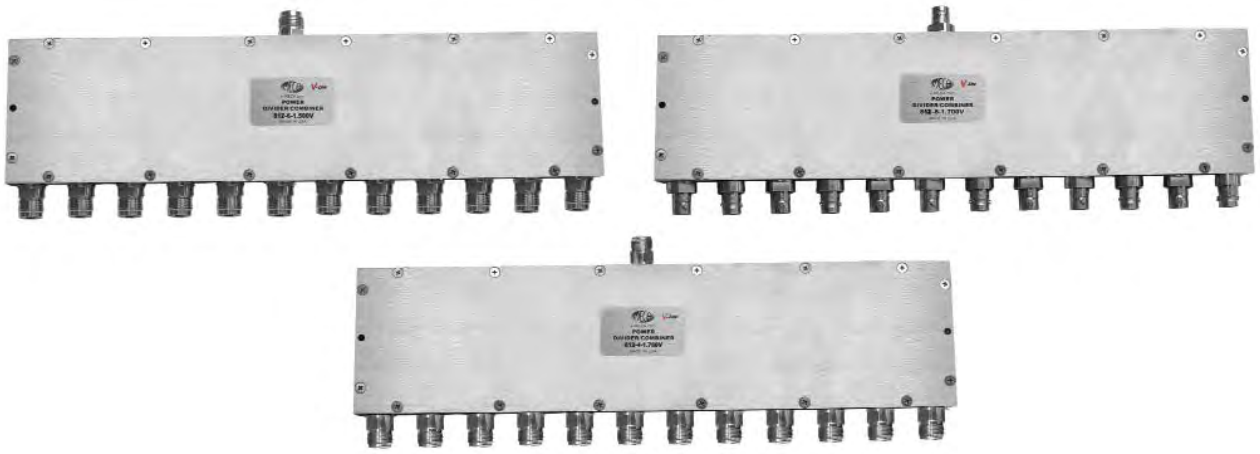
V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. **PDB-1 Kit** available for effortless mounting to walls, ceilings or rack assemblies. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

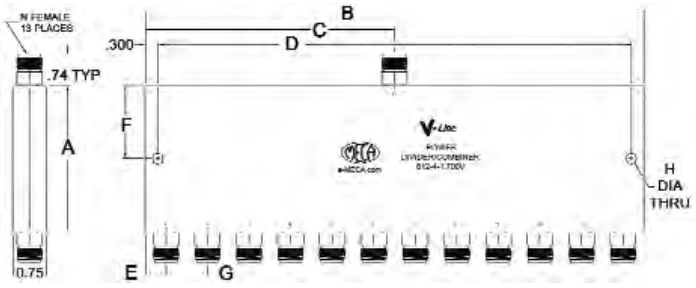
Notes:
1. Indoor use only.
2. Insertion loss above 10.79 dB theoretical 12-way power divider split.
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard.

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

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12-Way, 40 Watts*, N, BNC, TNC, 0.8-4.2 GHz: 812 Series





Mechanical Dimensions								
Drawing	A	B	C	D	E	F	G	H
1	3.50	12.00	6.00	11.75	0.50	1.75	1.00	.156
2	3.50	12.00	6.00	11.40	0.50	1.75	1.00	.265
3	3.00	12.00	6.00	11.75	0.50	1.50	1.00	.156

All dimensions are in inches.

MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.7 to 4.2 GHz for narrow, octave and multi-octave band applications, and are equipped with N, BNC or TNC connectors and a rugged aluminum housing for long lasting reliable performance. Weatherproof models (IP65) available.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.**

Catalog Number	Connector	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
812-4-1.500***V***	N	0.8-2.2	20	30	25	1.00	1.20	0.3	8	1.30:1	1.40:1	1.15:1	1.25:1	44.00	1
812-4.1.700***V***	N	0.7-2.7	40	23	18	1.2	1.7	0.8	12	1.35:1	1.50:1	1.25:1	1.40:1	44.00	2
812-6-1.700***V***	TNC	0.7-2.7	40	23	18	1.2	1.7	0.8	12	1.35:1	1.50:1	1.25:1	1.40:1	44.00	2
812-8-1.700***V***	BNC	0.7-2.7	40	20	17	1.25	1.75	0.9	12	1.40:1	1.50:1	1.30:1	1.45:1	44.00	2
812-4-3.100	N	2.0-4.2	20	25	22	1.00	1.20	0.3	8	1.30:1	1.40:1	1.15:1	1.25:1	37.70	3

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

Notes:
1. Indoor use only. Weatherproof models available by request
2. Insertion loss above 10.79 dB theoretical 12-way power divider split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

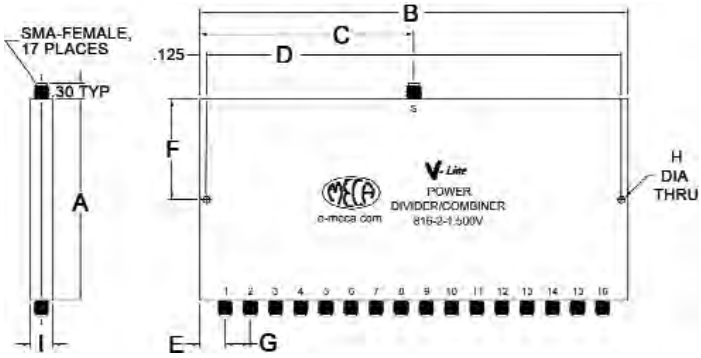
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16-Way, 40 Watts*, SMA-Female, 0.8-4.0 GHz: 816-2 Series







Mechanical Dimensions									
Drawing	A	B	C	D	E	F	G	H	I
1	4.00	8.50	4.25	8.25	0.50	2.00	0.50	.156	0.44
2	3.50	16.00	8.00	15.75	0.50	1.75	1.00	.156	0.75
3	3.50	8.50	4.25	8.25	0.50	1.75	0.50	.156	0.44

All dimensions are in inches.

MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.7 to 4.2 GHz for narrow, octave and multi-octave band applications, and are equipped with stainless steel SMA-Female connectors, gold-plated contact pins and a rugged aluminum housing for long lasting, reliable performance. Weatherproof models (IP65) available.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.**

Catalog Number	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
									Input		Output			
			Typ	Min	Typ	Min			Typ	Min	Typ	Min		
816-2-1.500*V*	0.8-2.2	20	25	20	1.20	1.50	0.4	8	1.30:1	1.40:1	1.10:1	1.20:1	16.32	1
816-2-1.700*V*	0.7-2.7	40	22	18	1.7	2.00	0.6	14	1.45:1	1.55:1	1.25:1	1.35:1	65.00	2
816-2-3.100	2.0-4.2	20	27	22	1.30	1.70	0.4	8	1.25:1	1.35:1	1.15:1	1.25:1	15.74	3

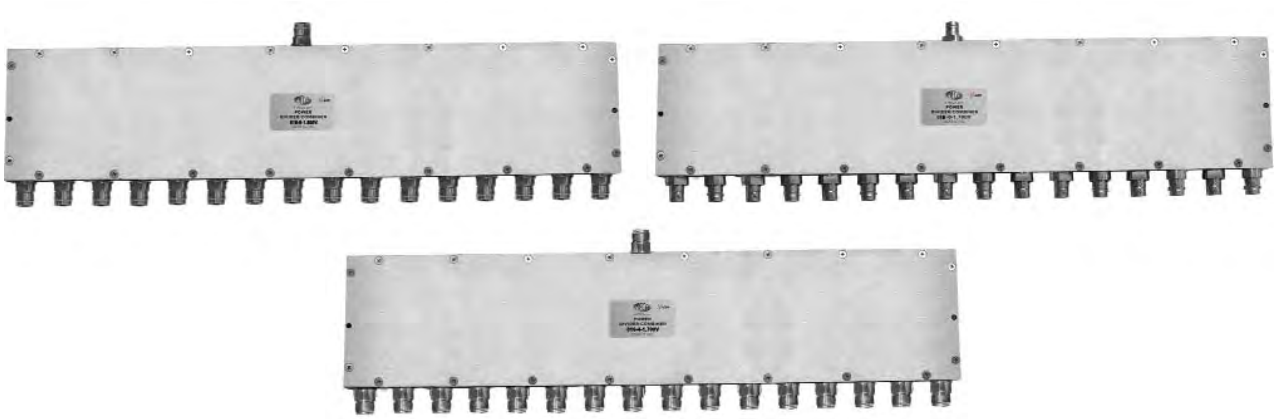
V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

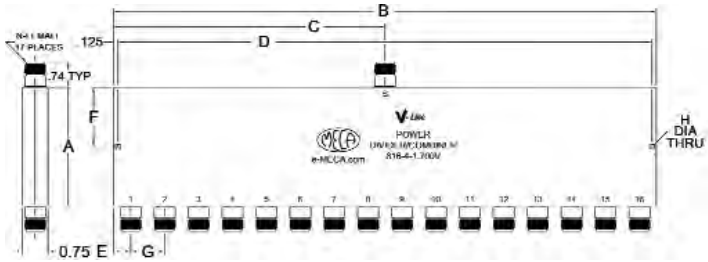
Notes:
1.Indoor use only
2. Insertion loss above 12.04 dB theoretical 16-way power divider split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

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16-Way, 40 Watts*, N, BNC, TNC, 0.8-4.2 GHz: 816 Series





Mechanical Dimensions								
Drawing	A	B	C	D	E	F	G	H
1	3.00	16.00	8.00	15.75	0.50	1.50	1.00	.156
2	3.50	16.00	8.00	15.75	0.50	1.75	1.00	.156
3	2.50	16.00	8.00	15.75	0.50	1.25	1.00	.156

All dimensions are in inches.

MECA's compact divider/combiners deliver high isolation between output ports with minimal insertion loss and exceptional phase and amplitude balance. The Wilkinson divider/combiners in this series cover a wide frequency range from 0.7 to 4.2 GHz for narrow, octave and multi-octave band applications, and are equipped with N, BNC or TNC connectors and a rugged aluminum housing for long lasting reliable performance. Weatherproof models (IP65) available.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.**

Catalog Number	Connector	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
816-4-1.500***V***	N	0.8-2.2	20	25	20	1.20	1.60	0.4	10	1.30:1	1.40:1	1.10:1	1.20:1	58.24	1
816-4-1.700***V***	N	0.7-2.7	40	22	18	1.75	2.00	0.6	14	1.45:1	1.55:1	1.25:1	1.35:1	75.00	2
816-6-1.700***V***	TNC	0.7-2.7	40	22	18	1.75	2.00	0.6	14	1.45:1	1.55:1	1.25:1	1.35:1	75.00	2
816-8-1.700***V***	BNC	0.7-2.7	40	20	17	1.75	2.00	0.6	14	1.50:1	1.60:1	1.30:1	1.40:1	75.00	2
816-4-3.100	N	2.0-4.2	20	25	22	1.60	1.80	0.4	10	1.20:1	1.30:1	1.15:1	1.25:1	48.00	3

V-Line Power Divider/Combiners cover all wireless bands from 0.7 - 2.7 GHz making them ideally suited for BTS and In-Building Wireless applications. Typically available from **STOCK!** Made in USA - 36 Month Warranty.

Notes:
1. Indoor use only. Weatherproof models available by request
2. Insertion loss above 12.04 dB theoretical 16-way power divider split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard

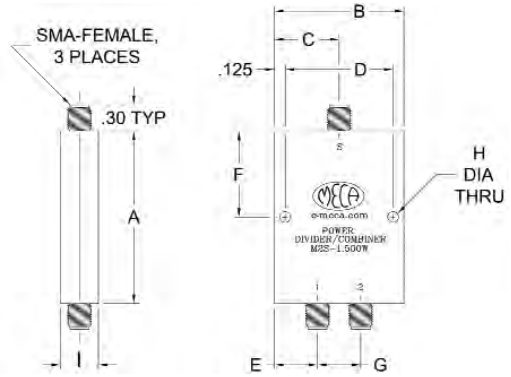
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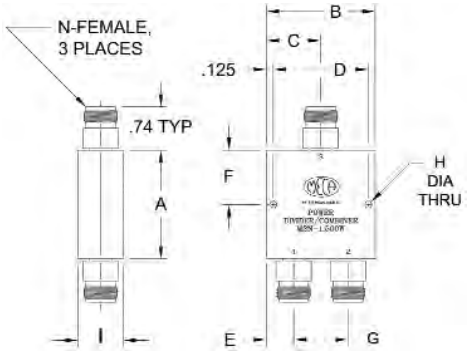
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75 Watt*, N, SMA, 0.8-2.2 GHz: M-Series







Mechanical Dimensions									
Drawing	A	B	C	D	E	F	G	H	I
1	2.00	1.50	0.75	1.25	0.50	1.00	0.50	.125	0.44
2	2.00	2.00	1.00	1.75	0.50	1.00	1.00	.125	0.75
3	3.00	2.50	1.25	2.25	0.50	1.50	0.50	.125	0.44
4	2.00	4.00	2.00	3.75	0.50	1.00	1.00	.125	0.75
5	3.50	4.50	2.25	4.25	0.50	1.75	0.50	.125	0.44
6	2.50	8.00	4.00	7.75	0.50	1.25	1.00	.125	0.75
7	2.00	2.75	1.38	2.50	0.38	1.00	1.00	.125	0.44
8	4.00	8.50	4.25	8.25	0.50	2.00	0.50	.156	0.75

All dimensions are in inches.

MECA's compact, high performance, 75-watt, Wilkinson power divider/combiner series is ideally suited for system applications from 0.8 to 2.2 GHz where increased power is used to extend system coverage. Your applications will benefit from high isolation, low insertion loss and exceptional VSWR. Standard models are available in 2-way through 8-way configurations in both N-Female and SMA-Female connectors with gold-plated contact pins and a rugged aluminum housing to minimize RF EMI.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.** **Higher power (H-Series) combiners listed on page 74.**

Catalog Number	N-Way	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
SMA-Female															
M2S-1.500W	2-Way	0.8-2.2	75	27	22	0.30	0.40	0.1	2	1.15:1	1.25:1	1.10:1	1.20:1	1.61	1
M4S-1.500W	4-Way	0.8-2.2	75	25	20	0.60	0.80	0.2	4	1.25:1	1.35:1	1.15:1	1.25:1	3.72	3
M8S-1.500W	8-Way	0.8-2.2	75	27	22	0.60	1.00	0.2	6	1.30:1	1.40:1	1.10:1	1.20:1	7.38	5
M16S-1.500W	16-Way	0.8-2.2	75	25	20	1.20	1.50	0.4	8	1.30:1	1.40:1	1.10:1	1.20:1	16.32	8
N-Female															
M2N-1.500W	2-Way	0.8-2.2	75	27	22	0.30	0.40	0.1	2	1.15:1	1.25:1	1.10:1	1.20:1	5.46	2
M3N-0.900	3-Way	0.8-1.0	75	40	30	0.30	0.40	0.2	3	1.10:1	1.15:1	1.10:1	1.15:1	7.77	7
M4N-1.500W	4-Way	0.8-2.2	75	25	20	0.60	0.80	0.2	4	1.25:1	1.35:1	1.15:1	1.25:1	10.00	4
M8N-1.500W	8-Way	0.8-2.2	75	27	22	0.80	1.20	0.2	8	1.25:1	1.35:1	1.10:1	1.20:1	1.35	6

Notes:
1. Indoor use only
2. Insertion Loss above theoretical split
3. All output/combiner ports are in-phase (0° difference)
4. Operating temperature from -55° C to +85° C
5. 50 ohm nominal impedance standard

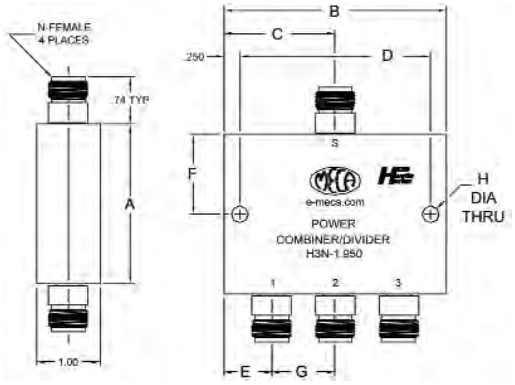
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High Power, 120 Watts*, N-Female, 0.8-2.2 GHz: H-Series



H Series



MECA's industry leading high power Wilkinson combiner/divider series ideally designed for systems applications utilizing multiple high-power transmitter or antenna feeds. Standard models are available in 2-way, 3-way and 4-way configurations for all wireless bands between 0.8 and 2.2 GHz. Your applications will benefit from high isolation, low insertion loss and exceptional VSWR. Mechanical features include a rugged aluminum housing specially designed to provide excellent heat transfer for applications where additional heatsink required and your choice of 7/16 DIN, N or SMA connectors. Weatherproof models (IP65) available.

Mechanical Dimensions

Drawing	A	B	C	D	E	F	G	H
1	2.00	2.50	1.25	2.00	0.75	1.00	1.00	.265
2	2.50	2.50	1.25	2.10	0.75	1.25	1.00	.265
3	1.50	2.50	1.25	2.00	0.75	0.75	1.00	.265
4	3.00	3.50	1.75	3.00	0.75	1.50	1.00	.265
5	2.00	3.50	1.75	3.00	0.75	1.00	1.00	.265
6	2.50	3.50	1.75	3.00	0.75	1.25	1.00	.265
7	3.50	4.50	2.25	4.10	0.75	1.75	1.00	.265
8	2.00	4.50	2.25	4.00	0.75	1.00	1.00	.265
9	1.05	4.50	2.25	4.00	0.75	0.75	1.00	.265

All dimensions are in inches.

Catalog Number	N-Way	Freq. (GHz)	Pwr*	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
H2N-0.460	2-Way	0.40-0.52	80	22	20	0.20	0.25	0.1	2	1.15:1	1.20:1	1.15:1	1.20:1	7.62	1
H2N-0.670	2-Way	0.38-0.96	80	22	20	0.30	0.50	0.2	3	1.20:1	1.30:1	1.15:1	1.20:1	9.18	2
H2N-0.900	2-Way	0.8-1.0	80	25	20	0.20	0.25	0.1	2	1.20:1	1.25:1	1.10:1	1.15:1	6.87	3
H2N-1.500*V*	2-Way	0.8-2.2	80	25	15	0.40	0.60	0.3	3	1.30:1	1.40:1	1.15:1	1.25:1	9.18	2
H2N-1.950	2-Way	1.7-2.2	80	25	20	0.25	0.30	0.1	2	1.25:1	1.30:1	1.15:1	1.20:1	6.87	3
H3N-0.460	11- Way	0.40-0.52	120	27	22	0.30	0.4	0.2	4	1.10:1	1.20:1	1.10:1	1.15:1	15.23	4
H3N-0.900	3-Way	0.8-1.0	120	27	22	0.30	0.40	0.2	4	1.10:1	1.20:1	1.10:1	1.15:1	11.32	5
H3N-1.950	3-Way	1.710-1.880	120	20	18	0.60	0.70	0.2	4	1.25:1	1.45:1	1.25:1	1.35:1	13.19	6
H4N-0.460	4-Way	0.4-0.520	100	22	20	0.30	0.40	0.2	4	1.15:1	1.20:1	1.15:1	1.20:1	23.84	7
H4N-0.900	4-Way	0.8-1.0	100	25	20	0.30	0.40	0.2	2	1.20:1	1.25:1	1.10:1	1.15:1	11.72	8
H4N-1.500*V*	4-Way	0.8-2.2	100	20	18	1.00	1.20	0.3	4	1.40:1	1.50:1	1.20:1	1.30:1	23.04	7
H4N-1.950	4-Way	1.7-2.2	100	23	18	0.40	0.50	0.2	4	1.20:1	1.30:1	1.10:1	1.20:1	11.72	9

MECA Catalog No. **HS-3** & **HS-3WM** are specially designed for use with all our H-Series Power Combiners and required when combiner case temperatures exceeds the recommended 85 deg C rating due to high power levels and/or elevated ambient temperatures. The **HS-3** is intended for applications where the combiners will be used on a flat surfaces and includes four rubber grommets to keep the assembly in place. **HS-3WM (shown)** is intended for effortless wall mounting while maintaining proper convection cooling and unobstructed access to the combiner. Please call our applications engineers for further mounting recommendations based on your specific project.



Notes:
1. Indoor use only. Weather resistant models available by request
2. All output/combiner ports are in-phase (0° difference)
3. Operating temperature from -55° C to +85° C
4. 50 ohm nominal impedance standard

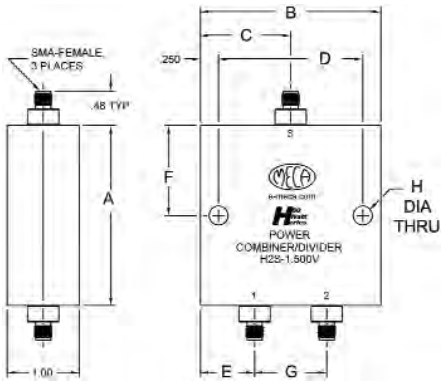
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High Power, 120 Watts*, SMA, 0.8-2.2 GHz: H-Series





MECA's industry leading high power Wilkinson combiner/divider series ideally designed for systems applications utilizing multiple high-power transmitter or antenna feeds. Standard models are available in 2-way, 3-way and 4-way configurations for all wireless bands between 0.8 and 2.2 GHz. Your applications will benefit from high isolation, low insertion loss and exceptional VSWR. Mechanical features include a rugged aluminum housing specially designed to provide excellent heat transfer for applications where additional heatsink required and your choice of 7/16 DIN, N or SMA connectors. Weatherproof models (IP65) available.

Mechanical Dimensions

Drawing	A	B	C	D	E	F	G	H
1	2.00	2.50	1.25	2.00	0.75	1.00	1.00	.265
2	2.50	2.50	1.25	2.10	0.75	1.25	1.00	.265
3	1.50	2.50	1.25	2.00	0.75	0.75	1.00	.265
4	3.00	3.50	1.75	3.00	0.75	1.50	1.00	.265
5	2.00	3.50	1.75	3.00	0.75	1.00	1.00	.265
6	2.50	3.50	1.75	3.00	0.75	1.25	1.00	.265
7	3.50	4.50	2.25	4.10	0.75	1.75	1.00	.265
8	2.00	4.50	2.25	4.00	0.75	1.00	1.00	.265
9	1.05	4.50	2.25	4.00	0.75	0.75	1.00	.265

All dimensions are in inches.

Catalog Number	N-Way	Freq. (GHz)	Pwr*	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
H2S-0.460	2-Way	0.40-0.52	80	22	20	0.20	0.25	0.1	2	1.15:1	1.20:1	1.15:1	1.20:1	5.95	1
H2S-0.670	2-Way	0.38-0.96	80	22	20	0.30	0.50	0.2	3	1.20:1	1.30:1	1.15:1	1.20:1	7.47	2
H2S-0.900	2-Way	0.8-1.0	80	25	20	0.20	0.25	0.1	2	1.20:1	1.25:1	1.10:1	1.15:1	5.17	3
H2S-1.500*V*	2-Way	0.8-2.2	80	25	15	0.40	0.60	0.3	3	1.30:1	1.40:1	1.15:1	1.25:1	7.47	2
H2S-1.950	2-Way	1.7-2.2	80	25	20	0.25	0.30	0.1	2	1.25:1	1.30:1	1.15:1	1.20:1	5.17	3
H3S-0.460	3-Way	0.40-0.52	120	27	22	0.30	0.40	0.2	4	1.10:1	1.20:1	1.30:1	1.40:1	7.47	4
H3S-0.900	3-Way	0.8-1.0	120	27	22	0.30	0.40	0.2	4	1.10:1	1.20:1	1.10:1	1.15:1	9.00	5
H3S-1.950	3-Way	1.710-1.880	120	20	18	0.60	0.70	0.2	4	1.25:1	1.45:1	1.25:1	1.35:1	11.00	6
H4S-0.900	4-Way	0.8-1.0	100	25	20	0.30	0.40	0.2	2	1.20:1	1.25:1	1.10:1	1.15:1	11.28	8
H4S-1.500*V*	4-Way	0.8-2.2	100	20	18	1.00	1.20	0.3	4	1.40:1	1.50:1	1.20:1	1.30:1	19.84	7
H4S-1.950	4-Way	1.7-2.2	100	23	18	0.40	0.50	0.2	4	1.20:1	1.30:1	1.10:1	1.20:1	8.80	9

MECA Catalog No. **HS-3** & **HS-3WM** are specially designed for use with all our H-Series Power Combiners and required when combiner case temperatures exceeds the recommended 85 deg C rating due to high power levels and/or elevated ambient temperatures. The **HS-3** is intended for applications where the combiners will be used on a flat surfaces and includes four rubber grommets to keep the assembly in place. **HS-3WM (shown)** is intended for effortless wall mounting while maintaining proper convection cooling and unobstructed access to the combiner. Please call our applications engineers for further mounting recommendations based on your specific project.



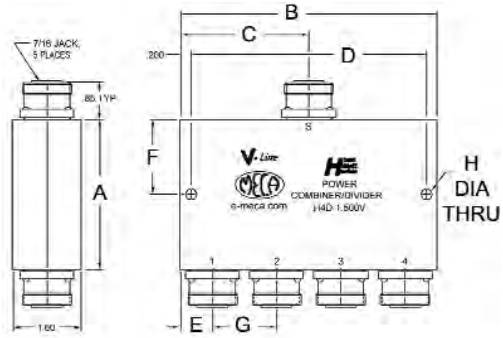
Notes:
1. Indoor use only. Weather resistant models available by request
2. All output/combiner ports are in-phase (0° difference)
3. Operating temperature from -55° C to +85° C
4. 50 ohm nominal impedance standard

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

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High Power, 100 Watts*, 7/16, 0.8-2.2 GHz: H-Series





MECA's industry leading high power Wilkinson combiner/divider series ideally designed for systems applications utilizing multiple high-power transmitter or antenna feeds. Standard models are available in 2-way and 4-way configurations for all wireless bands between 0.8 and 2.2 GHz. Your applications will benefit from high isolation, low insertion loss and exceptional VSWR. Mechanical features include a rugged aluminum housing specially designed to provide excellent heat transfer for applications where additional heatsink required and your choice of 7/16 DIN, N or SMA connectors. Weatherproof models (IP65) available.

MECHANICAL SPECIFICATIONS								
Drawing	A	B	C	D	E	F	G	H
1	2.50	3.00	1.50	2.60	0.75	1.25	1.50	.265
2	3.50	6.00	3.00	5.60	0.75	1.75	1.50	.265

All dimensions are in inches.

Catalog Number	N-Way	Freq. (GHz)	Pwr*	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
H2D-1.500*V*	2-Way	0.8-2.2	80	20	18	0.40	0.60	0.3	3	1.30:1	1.40:1	1.15:1	1.20:1	23.04	3
H4D-1.500*V*	4-Way	0.8-2.2	100	20	18	1.00	1.20	0.3	4	1.40:1	1.50:1	1.20:1	1.30:1		5

MECA Catalog No. **HS-3** & **HS-3WM** are specially designed for use with all our H-Series Power Combiners and required when combiner case temperatures exceeds the recommended 85 deg C rating due to high power levels and/or elevated ambient temperatures. The **HS-3** is intended for applications where the combiners will be used on a flat surfaces and includes four rubber grommets to keep the assembly in place. **HS-3WM (shown)** is intended for effortless wall mounting while maintaining proper convection cooling and unobstructed access to the combiner. Please call our applications engineers for further mounting recommendations based on your specific project.



Notes:
1. Indoor use only. Weather resistant models available
2. All output/combiner ports are in-phase (0° difference)
3. Operating temperature from -55° C to +85° C
4. 50 ohm nominal impedance standard

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TERMINATIONS				
Power	**Connector**	**Frequency (GHz)**	**Catalog Number**	**Page**
1 watt	N-Male	DC - 18.0	TN1-X	78
	SMA	DC - 18.0	462-1	
	SMA	DC - 3.0	462-1F3	
	QMA	DC - 3.0	TQ1-3	
	7/16 DIN	DC - 3.0	401-11A/401-12A	
2 watts	N-Type, SMA, TNC, BNC	0.3 - 1.0	406 Series, Feed-Thru	79
2 watts	N-Type, SMA, TNC, 7/16 DIN	DC - 18.0	401,402 & 464 Series	80
5 watts	N-Type, SMA, BNC, 7/16 DIN	DC - 12.4	405 & 400 Series	81
10 & 15 watts	N-Type, SMA, BNC, 7/16 DIN	DC - 12.4	417 & 403 Series	82
25 watts	N-Type, SMA, 7/16 DIN	DC - 6.0	407 Series	83
35 watts	N-Type, SMA, 7/16 DIN	DC - 6.0	404 Series	84
50 watts	N-Type, SMA, 7/16 DIN	DC - 6.0	480 Series	85
100 watts	N-Type, 7/16 DIN	DC - 4.0	490 Series	86
250 watts	N-Type	DC - 3.0	CTN SERIES	87
500 watts	N-Type	DC - 3.0	CTN SERIES	88

Terminations, or loads, offered by MECA are matched to 50 ohms characteristic impedance. Matched loads provide a termination designed to absorb all the incident power with very little reflection, effectively terminating the line or port in its characteristic impedance. Terminations are used in a wide variety of measurement systems; any port of a multi-port microwave device that is not involved in the measurement should be terminated in its characteristic impedance in order to ensure an accurate measurement. Terminations are also used in devices such as directional couplers and isolators. High power versions are used in transmitter applications as dummy loads.

When selecting a termination for a given connector style, one must determine the amount of power that needs to be absorbed and the acceptable level of reflection (VSWR) that can be tolerated over the given frequency range. MECA offers a wide selection of terminations from stock ready for your just-in-time shipments. With power ratings from 1 to 500 watts and frequency ranges up to 18 GHz, our terminations are designed to exceed commercial specifications.

Convenient Electrical Conversions										
VSWR	1.05:1	1.10:1	1.15:1	1.20:1	1.25:1	1.30:1	1.35:1	1.40:1	1.50:1	2.00:1
Return Loss (-dB)	32.256	26.444	23.127	20.828	19.085	17.692	16.540	15.563	13.979	9.542
Voltage Reflection Coeff.	0.024	0.047	0.069	0.091	0.111	0.130	0.149	0.167	0.200	0.333
Match Efficiency	99.94	99.97	99.51	99.17	98.77	98.30	97.78	97.22	96.00	88.89
Mismatch Loss (-dB)	0.003	0.010	0.021	0.036	0.054	0.075	0.097	0.122	0.177	0.512

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Terminations, 1watt, N-Type, SMA, QMA, 7/16 DIN, DC-18.0 GHz



Catalog Number	Connector	Average Power (W)	Peak Power (W)	Frequency (GHz)	VSWR (Max)	Length (L) (Inches)	Diameter (D) (Inches)	Weight (Ounces)
TN1-3	N-Male	1	1000	DC - 3.0	1.10:1	0.990	0.82	1.30
TN1-6				DC - 6.0	1.10:1			
TN1-18				DC - 18.0	1.30:1			
462-1	SMA-Male	1	250	DC - 8.0 8.0 - 12.4 12.4 - 18.0	1.05:1 1.15:1 1.20:1	0.33 ±.05	0.312	0.07
462-1F3	SMA-Male	1	1000	DC - 3.0	1.15:1	0.43 ±.03	0.312	0.07
TQ1-3	QMA-Male	1	2000	DC - 1.0 1.0 - 2.0 2.0 - 3.0	1.10:1 1.15:1 1.30:1	1.35	0.30	0.50
401-11A	DIN-Male	1	250	DC - 1.0 1.0 - 2.0 2.0 - 3.0	1.10:1 1.15:1 1.20:1	2.00	1.06	4.40
401-12A	DIN-Female	1	250	DC - 1.0 1.0 - 2.0 2.0 - 3.0	1.10:1 1.15:1 1.20:1	2.00	1.06	4.40

MECA RF loads are optimized for excellent performance across all wireless bands and their rugged construction makes them ideal for both base station and in-building wireless systems. Always available from STOCK - 2 weeks for your next generation equipment deployments!

MECHANICAL SPECIFICATIONS

TN1-X: Furnished with nickel-plated brass N-Male connector and housing, gold-plated contact pin.
462-1: Furnished with stainless steel passivated SMA connector, gold-plated contact pin and nickel-plated brass housing.
462-1F3: Furnished with stainless steel passivated SMA connector, gold-plated contact pin and nickel-plated brass housing.
TQ1-3: Furnished with albaloy plated (low PIM) QMA-Male connector and housing, gold-plated contact pin.
401-XA: Furnished with albaloy plated (low PIM) 7/16 DIN connector and housing, silver-plated contact pin.

Notes:

1. Indoor use only.
2. 50 ohms nominal impedance is standard
3. Operating temperature from -55° C to +85° C
4. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125°

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

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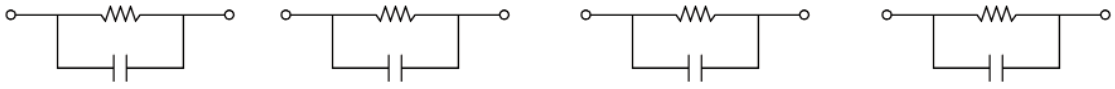
Terminations, 2 Watts Feed-Thru, N-Type, SMA, TNC, BNC, 0.3-1.0 GHz



406N-MF 406S-MF 406T-MF 406B-MF

Designed to provide high impedance devices such as an oscilloscope with a characteristic 50-Ohm impedance. MECA's family of RoHS compliant Feed-Thru Terminations operate between 300-1000 MHz and are available off-the-shelf in N, SMA, BNC and TNC connector configurations. Units are rated at 2w avg (500w peak).

Catalog Number	Connector	Average Power (W)	Peak Power (W)	Frequency (GHz)	VSWR (Max)	Length (L) (Inches)	Diameter (D) (Inches)	Weight (Ounces)
406N-MF	N-Type	2	500	0.3 - 1.0	1.30:1	2.20	0.82	3.14
406S-MF	SMA	2	500	0.3 - 1.0	1.30:1	1.31	11/32 (.344) HEX	0.32
406T-MF	TNC	2	500	0.3 - 1.0	1.30:1	1.82	0.57	1.15
406B-MF	BNC	2	500	0.3 - 1.0	1.30:1	1.82	0.59	0.90



406N-MF 406S-MF 406T-MF 406B-MF

SMA & BNC MECHANICAL SPECIFICATIONS	
Connectors	Brass Albaloy
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Albaloy
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C

N-TYPE & TNC MECHANICAL SPECIFICATIONS	
Connectors	Brass Nickel Plate/Albaloy
Male Pin	Brass Gold Plate
Female Pin	Beryllium Copper Gold Plate
Housing	Brass Nickel Plate/Albaloy
Insulator	PTFE Virgin Electrical Grade
Operating Temp	-55° C to +85° C

RoHS Compliant: Yes

Notes:
1. Indoor use only
2. 50 ohms nominal impedance is standard
3. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125°

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Terminations, 2watts, N-Type, SMA, BNC, TNC, 7/16 DIN, DC-18.0 GHz



Catalog Number	Connector	Average Power (W)	Peak Power (W)	Frequency (GHz)	VSWR (Max)	Length (L) (Inches)	Diameter (D) (Inches)	Weight (Ounces)
401-1F3	N-Male	2	2000	DC - 3.0	1.15:1	1.50	0.82	2.20
401-1	N-Male	2	2000	DC - 2.0 2.0 - 6.0 6.0 - 12.4	1.15:1 1.25:1 1.35:1	1.50	0.82	2.20
402-1	N-Male	2	2000	DC - 2.0 2.0 - 6.0 6.0 - 12.4	1.15:1 1.25:1 1.35:1	1.50	0.82	2.20
401-2	N-Female	2	2000	DC - 3.0 3.0 - 6.0	1.15:1 1.25:1	1.60	0.75	2.10
402-2	N-Female	2	2000	DC - 2.0 2.0 - 6.0 6.0 - 12.4	1.15:1 1.25:1 1.35:1	1.60	0.75	2.10
402-3	BNC-Male	2	1000	DC - 2.0 2.0 - 6.0 6.0 - 12.4	1.15:1 1.25:1 1.35:1	1.30	0.60	0.90
402-4	BNC-Female	2	1000	DC - 2.0 2.0 - 6.0 6.0 - 12.4	1.15:1 1.25:1 1.35:1	1.25	0.60	0.90
401-5	TNC-Male	2	2000	DC - 3.0 3.0 - 6.0	1.15:1 1.25:1	1.35	0.65	0.90
401-5RP	RP-TNC Male	2	2000	DC - 3.0 3.0 - 6.0	1.15:1 1.25:1	1.35	0.65	0.90
464-1	SMA-Male	2	250	DC - 4.0 4.0 - 8.0 8.0 - 12.4 12.4 - 18.0	1.15:1 1.20:1 1.25:1 1.30:1	0.50	0.32	0.07
464-2	SMA-Female	2	250	DC - 4.0 4.0 - 8.0 8.0 - 12.4 12.4 - 18.0	1.15:1 1.20:1 1.25:1 1.30:1	0.50	0.32	0.07
401-11	DIN-Male	2	500	DC - 1.0 1.0 - 2.0 2.0 - 3.0	1.10:1 1.15:1 1.20:1	2.00	1.06	4.40
401-12	DIN-Female	1	500	DC - 1.0 1.0 - 2.0 2.0 - 3.0	1.10:1 1.15:1 1.20:1	2.00	1.06	4.40

MECA RF loads are optimized for excellent performance across all wireless bands and their rugged construction makes them ideal for both base station and in-building wireless systems. Always available from STOCK - 2 weeks for your next generation equipment deployments!

MECHANICAL SPECIFICATIONS

401, 402 Series: Furnished with nickel-plated brass connector and housing, gold-plated contact pin.
464-1: Furnished with stainless steel passivated connector, gold-plated contact pin, black anodized heat sink and aluminum housing.
401-11/12: Furnished with brass albaloy plated (low PIM) connector, contact pin and housing.

Notes:

1. Indoor use only.
2. 50 ohms nominal impedance is standard
3. Operating temperature from -55° C to +85° C
4. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

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Terminations, 5 watts, N-Type, SMA, BNC, 7/16 DIN, DC-12.4 GHz



405-1
400-1

405-2
400-2

400-7

400-8

405-11

405-12

Catalog Number	Connector	Average Power (W)	Peak Power (W)	Frequency (GHz)	VSWR (Max)	Length (L) (Inches)	Diameter (D) (Inches)	Weight (Ounces)
405-1	N-Male	5	2000	DC - 1.0 1.0 - 3.0	1.10:1 1.15:1	1.50	0.82	2.20
400-1	N-Male	5	2000	DC - 6.0 6.0 - 12.4	1.20:1 1.30:1	1.50	0.82	2.20
405-2	N-Female	5	2000	DC - 1.00 1.0 - 3.0	1.10:1 1.15:1	1.60	0.75	2.10
400-2	N-Female	5	2000	DC - 6.0 6.0 - 12.4	1.20:1 1.30:1	1.60	0.75	2.10
405-3	BNC-Male	5	5000	DC - 1.0 1.0 - 3.0	1.15:1 1.20:1	1.30	0.60	0.90
400-7	SMA-Male	5	2000	DC - 4.0 4.0 - 8.0 8.0 - 12.4 12.4 - 18.0	1.15:1 1.20:1 1.30:1 1.40:1	1.12	0.50	0.40
400-8	SMA-Female	5	2000	DC - 4.0 4.0 - 8.0 8.0 - 12.4 12.4 - 18.0	1.15:1 1.20:1 1.30:1 1.40:1	1.00	0.50	0.40
405-11	DIN-Male	5	1000	DC - 1.0 1.0 - 2.0 2.0 - 3.0	1.10:1 1.15:1 1.20:1	2.00	0.95	4.40
400-11	DIN-Female	5	1000	DC - 1.0 1.0 - 3.0 3.0 - 7.5	1.10:1 1.20:1 1.25:1	2.00	0.95	4.40
405-12	DIN-Male	5	1000	DC - 1.0 1.0 - 2.0 2.0 - 3.0	1.10:1 1.15:1 1.20:1	2.00	0.95	4.40
400-12	DIN-Female	5	1000	DC - 1.0 1.0 - 3.0 3.0 - 7.5	1.10:1 1.20:1 1.25:1	2.00	0.95	4.40

MECA RF loads are optimized for excellent performance across all wireless bands and their rugged construction makes them ideal for both base station and in-building wireless systems. Always available from STOCK - 2 weeks for your next generation equipment deployments!

MECHANICAL SPECIFICATIONS

400, 405 Series: Furnished with nickel-plated brass connector and housing, gold-plated contact pin.
405-11/12: Furnished with brass albaloy plated (low PIM) connector, contact pin and housing.

Notes:

1. Indoor use only.
2. 50 ohm nominal impedance is standard
3. Operating temperature from -55° C to +85° C
4. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

Terminations, 10-15 watts, N-Type, SMA, 7/16 DIN, DC-12.4 GHz



417-1 417-2 417-11A 403-1 403-2 403-7 403-8

Catalog Number	Connector	Average Power (W)	Peak Power (W)	Frequency (GHz)	VSWR (Max)	Length (L) (Inches)	Diameter (D) (Inches)	Weight (Ounces)
417-1	SMA-Male	10	2000	DC - 4.0 4.0 - 8.0 8.0 - 12.4 12.4 - 18.0	1.15:1 1.25:1 1.30:1 1.40:1	2.50	0.645	0.80
417-2	SMA-Male	10	2000	DC - 4.0 4.0 - 8.0 8.0 - 12.4 12.4 - 18.0	1.15:1 1.25:1 1.30:1 1.40:1	1.82	0.645	0.80
417-11A	DIN-Male	10	1000	DC - 1.0 1.0 - 2.0 2.0 - 3.0	1.10:1 1.15:1 1.20:1	2.00	0.95	4.90
403-1	N-Male	15	2000	DC - 1.0 1.0 - 3.0	1.15:1 1.20:1 1.50:1	2.50	1.25	3.00
403-2	N-Female	15	2000	DC - 4.0 4.0 - 8.0 8.0 - 12.4 12.4 - 18.0	1.15:1 1.25:1 1.30:1 1.40:1	2.55	1.25	2.90
403-7	SMA-Male	15	2000	DC - 3.0 3.0 - 6.0 6.0 - 12.4	1.15:1 1.20:1 1.50:1	2.00	1.25	1.90
403-8	SMA-Female	15	2000	DC - 3.0 3.0 - 6.0 6.0 - 12.4	1.15:1 1.20:1 1.50:1	1.90	1.25	1.90

MECA RF loads are optimized for excellent performance across all wireless bands and their rugged construction makes them ideal for both base station and in-building wireless systems. Always available from STOCK - 2 weeks for your next generation equipment deployments!

MECHANICAL SPECIFICATIONS

417 Series: Furnished with stainless steel passivated connector, gold-plated contact pin, black anodized heat sink and aluminum housing

417-11A: Furnished with brass silver plated (low PIM) connector and contact pin, black anodized heat sink and aluminum housing.

403 Series: Furnished with albaloy plated brass connector, gold-plated contact pin, black anodized heat sink and aluminum housing.

Notes:

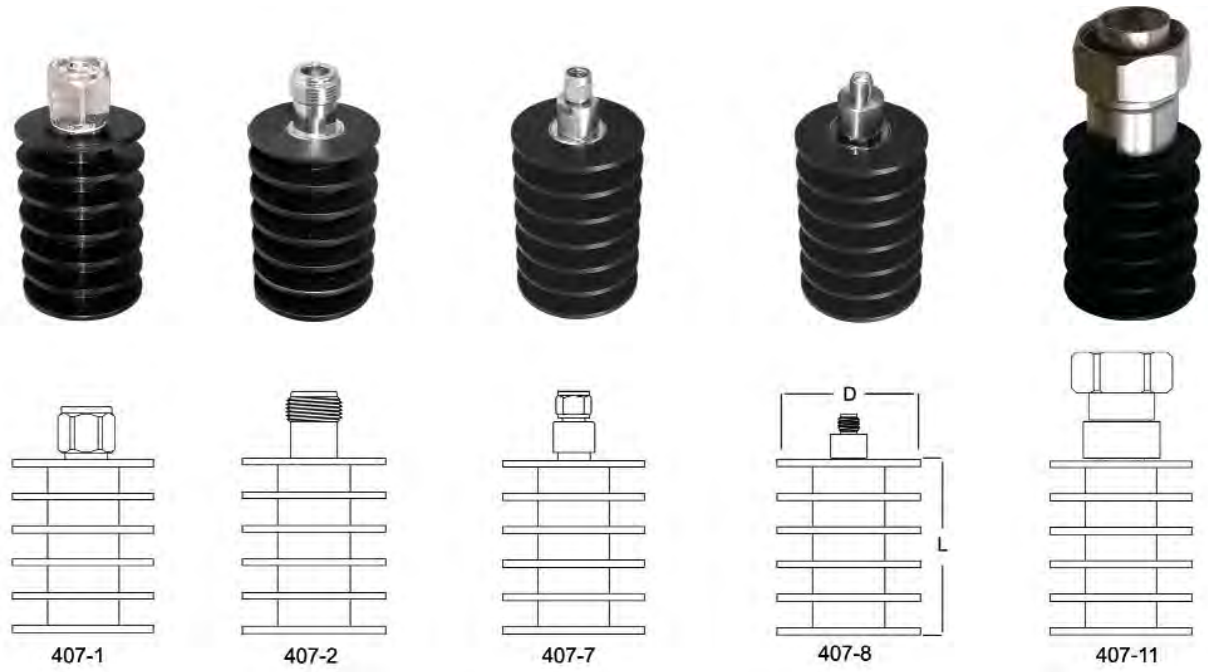
1. Indoor use only.
2. 50 ohms nominal impedance standard
3. Operating temperature from -55° C to +85° C
4. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

This document gives only a general description of the product(s) and shall not form part of any contract. Please contact a MECA Applications Engineer for the most current specification drawing.

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Terminations, 25 watts, N-Type, SMA, 7/16 DIN, DC-6.0 GHz



Catalog Number	Connector	Average Power (W)	Peak Power (W)	Frequency (GHz)	VSWR (Max)	Length (L) (Inches)	Diameter (D) (Inches)	Weight (Ounces)
407-1	N-Male	25	3000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	2.77	1.62	4.80
407-2	N-Female	25	3000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	2.73	1.62	4.80
407-7	SMA-Male	25	3000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	2.77	1.62	3.70
407-8	SMA-Female	25	3000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	2.67	1.62	3.70
407-11	DIN-Male	25	3000	DC - 1.0 1.0 - 2.0 2.0 - 4.0	1.10:1 1.15:1 1.20:1	4.03	1.62	8.10

MECA RF loads are optimized for excellent performance across all wireless bands and their rugged construction makes them ideal for both base station and in-building wireless systems. Always available from STOCK - 2 weeks for your next generation equipment deployments!

MECHANICAL SPECIFICATIONS

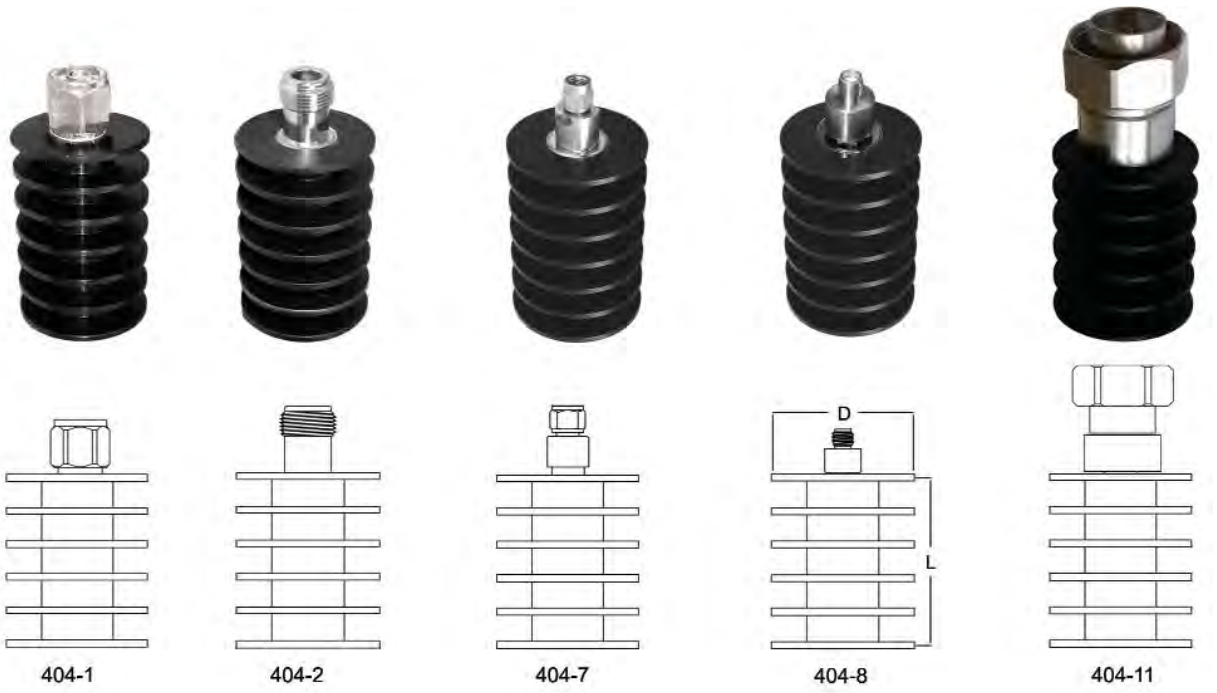
407 Series: Furnished with albaloy plated (low PIM) brass or passivated stainless steel connectors, gold-plated contact pin, black anodized heat sink and aluminum housing.
407-11: Furnished with brass albaloy plated (low PIM) connector and contact pin, black anodized heat sink and aluminum housing.

Notes:
1. Indoor use only.
2. 50 ohms nominal impedance standard
3. Operating temperature from -55° C to +85° C
4. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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Terminations, 35 watts, N-Type, SMA, 7/16 DIN, DC-6.0 GHz



tCatalog Number	Connector	Average Power (W)	Peak Power (W)	Frequency (GHz)	VSWR (Max)	Length (L) (Inches)	Diameter (D) (Inches)	Weight (Ounces)
404-1	N-Male	35	5000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	2.77	1.62	4.80
404-2	N-Female	35	5000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	2.73	1.62	4.80
404-7	SMA-Male	35	5000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	2.77	1.62	3.70
404-8	SMA-Female	35	5000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	2.67	1.62	3.70
404-11	DIN-Male	35	5000	DC - 1.0 1.0 - 2.0 2.0 - 4.0	1.10:1 1.15:1 1.20:1	4.03	1.62	8.10

MECA RF loads are optimized for excellent performance across all wireless bands and their rugged construction makes them ideal for both base station and in-building wireless systems. Always available from STOCK - 2 weeks for your next generation equipment deployments!

MECHANICAL SPECIFICATIONS

404 Series: Furnished with albaloy plated (low PIM) brass or passivated stainless steel connectors, gold-plated contact pin, black anodized heat sink and aluminum housing.

404-11: Furnished with brass albaloy plated (low PIM) connector and contact pin, black anodized heat sink and aluminum housing.

Notes:

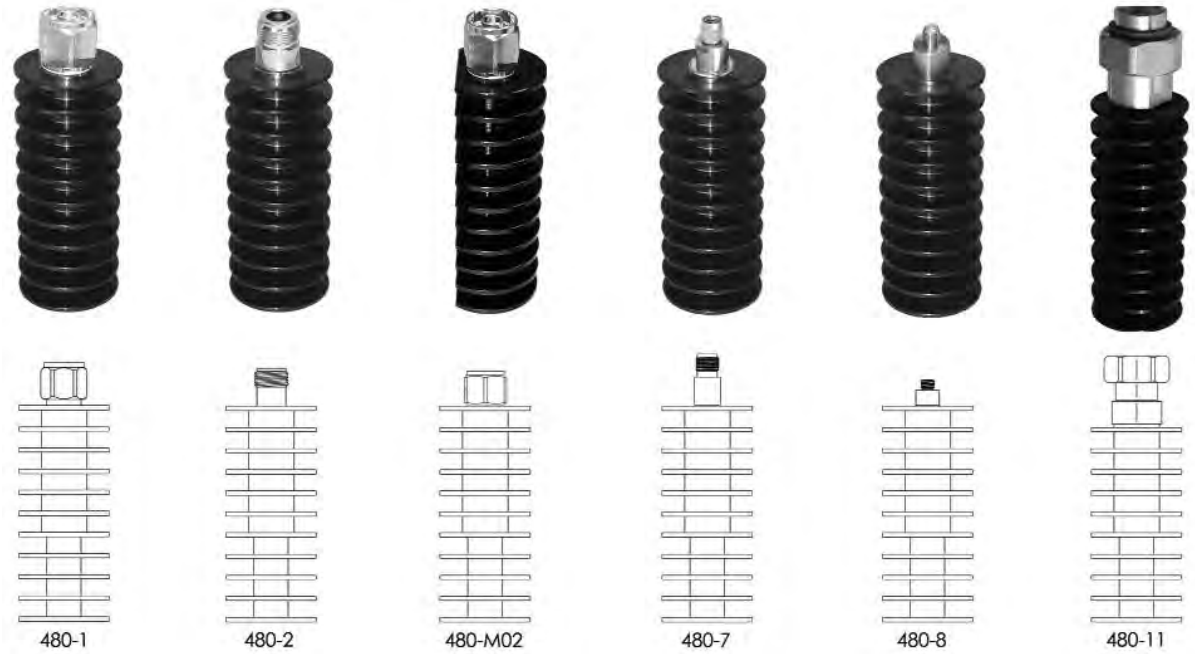
1. Indoor use only
2. 50 ohms nominal impedance standard
3. Operating temperature from -55° C to +85° C
4. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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Terminations, 50 watts, N-Type, SMA, 7/16 DIN, DC-6.0 GHz



Catalog Number	Connector	Average Power (W)	Peak Power (W)	Frequency (GHz)	VSWR (Max)	Length (L) (Inches)	Diameter (D) (Inches)	Weight (Ounces)
480-1	N-Male	50	5000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	4.67	1.62	5.80
480-2	N-Female	50	5000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	4.60	1.62	5.80
480-M02	N-Male	50	5000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	4.67	1.62	5.80
480-7	SMA-Male	50	5000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	4.67	1.62	5.30
480-8	SMA-Female	50	5000	DC - 2.0 2.0 - 4.0 4.0 - 6.0	1.10:1 1.20:1 1.30:1	4.60	1.62	5.30
480-11	DIN-Male	50	5000	DC - 1.0 1.0 - 2.0 2.0 - 4.0	1.10:1 1.15:1 1.20:1	5.93	1.63	10.00

MECA RF loads are optimized for excellent performance across all wireless bands and their rugged construction makes them ideal for both base station and in-building wireless systems. Always available from STOCK - 2 weeks for your next generation equipment deployments!

MECHANICAL SPECIFICATIONS
480 Series: Furnished with albaloy plated (low PIM) brass or passivated stainless steel connectors, gold-plated contact pin, black anodized heat sink and aluminum housing.
480-11: Furnished with brass silver plated (low PIM) connector and contact pin, black anodized heat sink and aluminum housing.

Notes:
1. Indoor use only.
2. 50 ohms nominal impedance standard
3. Operating temperature from -55° C to +85° C
4. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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Terminations, 100 watts, N-Type, 7/16 DIN, DC-4.0 GHz



Catalog Number	Connector	Average Power (W)	Peak Power (W)	Frequency (GHz)	VSWR (Max)	Length (L) (Inches)	Diameter (D) (Inches)	Weight (Ounces)
490-1	N-Male	100	5000	DC - 1.0 1.0 - 2.4 2.4 - 4.0	1.10:1 1.20:1 1.30:1	6.79	2.73	35.0
490-2	N-Female	100	5000	DC - 1.0 1.0 - 2.4 2.4 - 4.0	1.10:1 1.20:1 1.30:1	6.75	2.73	35.0
490-11	DIN-Male	100	5000	DC - 1.0 1.0 - 2.4 2.4 - 4.0	1.10:1 1.20:1 1.30:1	8.05	2.73	39.0

MECA's 490 Series 100Watt RF loads are optimized for excellent performance across all wireless bands and their rugged construction makes them ideal for both base station and in-building wireless systems. Always available from **STOCK - 2 weeks** for your next generation equipment deployments!

MECHANICAL SPECIFICATIONS
All models urnished with albaloy plated (low PIM) brass, gold-plated contact pin, black anodized heat sink and aluminum housing.

Notes:
1. Indoor use only.
2. 50 ohms nominal impedance standard
3. Operating temperature from -55° C to +85° C
4. Rated power is at 25° C ambient temperature through natural air convection and derates linearly to 0 watts @ +125° C

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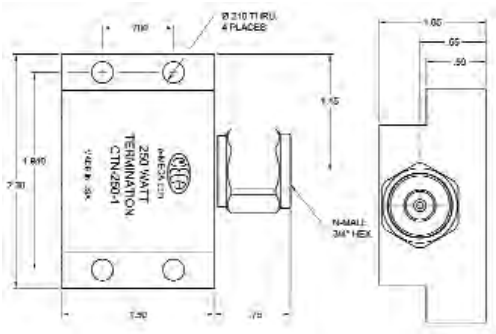
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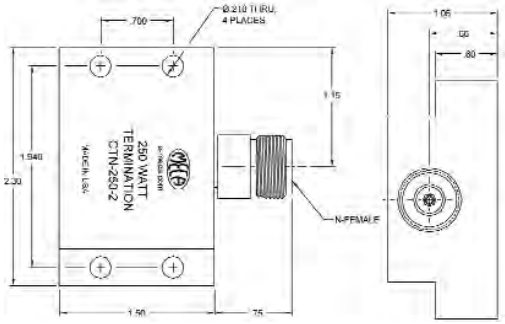
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Terminations, 250 watts, N-Type DC-3.0 GHz: CTN Series



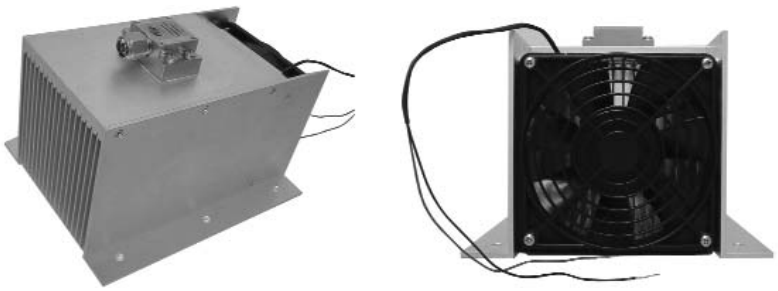






Catalog Number	Connector	Average Power (W)	Peak Power (W)	Frequency (GHz)	VSWR (Max)	Length (L) (Inches)	Diameter (D) (Inches)	Weight (Ounces)
CTN-250-1	N-Male	250	2000	DC - 0.5 0.5 - 1.0 1.0 - 2.5 2.5 - 3.0	1.10:1 1.20:1 1.30:1 1.45:1	2.25	W = 2.00 H =1.06	12.0
CTN-250-2	N-Female	250	2000	DC - 0.5 0.5 - 1.0 1.0 - 2.5 2.5 - 3.0	1.10:1 1.20:1 1.30:1 1.45:1	2.25	W=2.30 H=1.06	12.0

Note: Conduction cooled terminations require heat sinks to operate at full rated power. MECA Catalog No. HS-1 heat sinks are specially designed to operate our CTN-250-X (250w) conduction cooled loads at full rated power. Please specify HS-1DC when fan is connected to a +48V DC source or HS-1AC when fan is connected to 110V AC source. All mounting hardware is included.



CTN-250-1 with HS-1DC (Sold Separately)

MECHANICAL SPECIFICATIONS
CTN Series: Furnished with albaloy plated (low PIM) brass connector and housing, gold-plated contact pin.

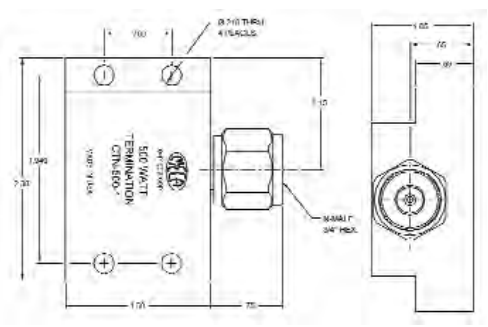
Notes:
1. Indoor use only
2. 50 ohms nominal impedance standard.
3. When properly heat sunk, unit will operate at full-rated power up to 25° C and derate linearly to 0 at 150° C.
4. Operating temperature from -55° C to +85° C.

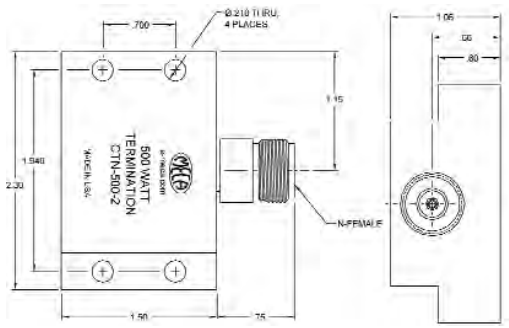
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Terminations, 500 watts, N-Type DC-3.0 GHz: CTN Series



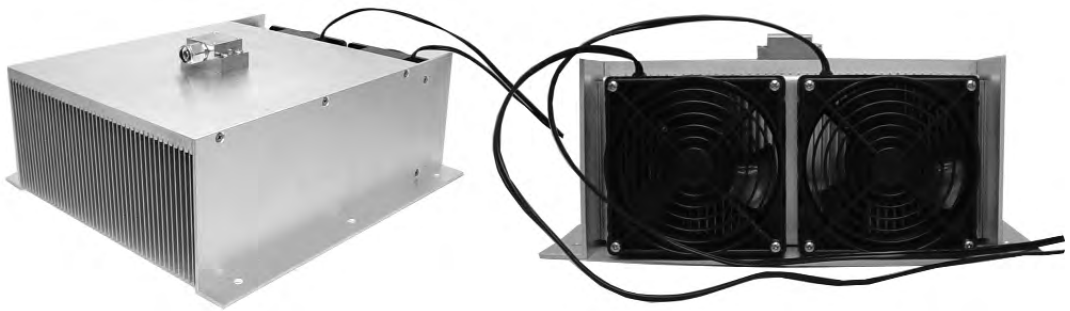






Catalog Number	Connector	Average Power (W)	Peak Power (W)	Frequency (GHz)	VSWR (Max)	Length (L) (Inches)	Diameter (D) (Inches)	Weight (Ounces)
CTN-500-1	N-Male	500	5000	DC - 1.0 1.0 - 2.0	1.20:1 1.25:1	2.25	W=2.30 H=1.06	12.10
CTN-500-2	N-Female	500	5000	DC - 1.0 1.0 - 2.0	1.20:1 1.25:1	2.25	W=2.30 H=1.06	12.10

Note: Conduction cooled terminations require heat sinks to operate at full rated power. MECA Catalog No. HS-2 heat sinks are specially designed to operate our CTN-500-X (500w) conduction cooled loads at full rated power. Please specify HS-2DC when fans are connected to a +48V DC source or HS-2AC when connected to 110V AC source. All mounting hardware is included.



CTN-500-1 with HS-2 DC (Sold Separately)

MECHANICAL SPECIFICATIONS
CTN Series: Furnished with nickel-plated brass connector, gold-plated contact pin, black anodized heat sink and aluminum housing.

Notes:
1. Indoor use only
2. 50 ohms nominal impedance standard
3. When properly heat sunk, unit will operate at full-rated power up to 25° C and derate linearly to 0 at 150° C
4. Operating temperature from -55° C to +85° C

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Albaloy: A plating finish comprised primarily of copper, tin and zinc which provides good electrical performance, but unlike silver, albaloy is highly resistant to tarnish. Being non-magnetic, it also provides excellent passive intermodulation (PIM) performance comparable to silver.

Amplitude Balance: The maximum peak-to-peak amplitude difference (in dB) between the output ports of a power divider or hybrid coupler over the specified frequency range.

Attenuation Accuracy: The amount of variation in magnitude from the nominal value across the entire frequency band.

Attenuator: A passive device or network that absorbs part of the input signal and transmits the remainder with minimal distortion. Attenuators are used to extend the dynamic range of devices such as power meters and amplifiers, reduce signal levels to detectors, match circuits and are used daily in lab applications to aid in product design. Attenuators are also used to balance out transmission lines that otherwise would have unequal signal levels.

Base Station: A fixed transmitter/receiver with which a mobile radio transceiver establishes a connection link to gain access to the public-switched telephone network.

Bias Tees: A passive device used in applications to inject/remove DC voltages in RF circuits without affecting the RF signal through the main transmission path. Ideal for remote powering of bi-directional amplifiers (BDAs), repeaters and tower top amplifiers (TTAs) by BTS control modules.

Circulator: A three-port ferromagnetic passive device used to control the direction of signal flow in an RF circuit.

Coaxial: A transmission line in which one conductor completely surrounds the other, the two being coaxial and separated by a continuous dielectric such as air or PTFE.

CW – (Continuous Wave): Signal of constant amplitude. Used to differentiate between the performance of a microwave component for continuous power level vs. pulsed signals.

dB – (Decibel): A unit of gain equal to ten times the common logarithm of the ratio of two power levels or 20 times the common logarithm of the ratio between two voltages.

dBc: Decibel related to the signal of a carrier. Passive intermodulation distortion is typically stated in dBc which takes into consideration the 43 dBm carrier tones.

dBm: Decibels related to 1mW – the standard unit of power level used in the microwave industry. Example: 0 dBm = 1mw, +10 dBm = 10mw, +20dBm = 100mw, etc.

DC Block: An in-line device primarily used in applications to block DC voltages in RF circuits without affecting the RF signal through the main transmission path.

The three basic types are:

Inner – Blocks DC voltages on inner conductor only
Outer – Blocks DC voltages on outer conductor only
Inner/Outer – Blocks DC voltages on both conductors

Directional Coupler: A passive device used for sampling incident and reflected microwave power conveniently and accurately with minimal disturbance to the transmission line. Some general applications for directional couplers include line monitoring, power measurements and load source isolators.

Directivity: A measurement of the desired signal strength to the undesired signal strength. Determined by taking the value of isolation and subtracting the specified coupling (including all variations). Directivity is a measure of how good the couplers performance is (similar to the Q factor of a coil).

EMI – (Electromagnetic Interference): Unintentional interfering signals generated within or external to electronic equipment. Typical sources could be power line transients and electromechanical switching equipment.

Frequency Range The minimum and maximum frequencies between which the specified component will meet all guaranteed specification.

Frequency Sensitivity: The maximum peak-to-peak variation in coupling (in dB) of a directional or hybrid coupler over the specified frequency range. Also referred to as “flatness”.

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GHz - (Gigahertz): A unit of frequency measure equal to 1000 MHz (Megahertz) or a billion hertz.

Hybrid Coupler: A passive four-port device that is used either to equally split an input signal with a resultant 90° phase shift between output signals or to combine two signals while maintaining high isolation between them.

Impedance: Resistance to alternating current. Most RF and microwave systems are designed to operate with a characteristic impedance of 50 ohms.

Input VSWR: Minimum voltage standing wave ratio of a power divider at the input (sum) port over the specified frequency range with all other ports terminated in 50 ohm loads.

Insertion Loss: The change in load power due to the insertion of a particular device into a transmission system.

Iridite: A chemical film (typically clear or yellow in color) which provides a barrier medium to prevent corrosion on aluminum surfaces and enhance adhesion of subsequent coatings such as paints and primers.

Isolation: A unit of measure (in dB) that states the separation of signal levels on adjacent ports of a device. The greater the isolation value, less interference from a signal on one port is present at the other.

Isolator: A two-port ferromagnetic passive device which is used to control the direction of signal flow and utilizes an internal resistor. Typically used to protect other RF components from excessive signal reflection.

MHz - (Megahertz): A unit of frequency measure equal to 1000 kHz (Kilohertz) or a million hertz.

Microstrip – (Microstripline): A transmission line consisting of a metalized strip and solid ground plane metallization separated by a thin, solid dielectric. Microstrip is a popular material above 400 MHz and below 6 GHz because it permits accurate fabrication of transmission lines on ceramic or PC board substrates. Higher frequencies or broadband devices tend to favor stripline technology.

MTBF – (Mean Time Between Failure): The mean (average) time between failures of a component and is often attributed to the “useful life” of the materials used to assemble the device. MTBF assumes that the component can be “renewed” or fixed after each failure and returned to service immediately after failure.

Non-Coherent Signals: The limiting factor for most Wilkinson power dividers used as combiners is power dissipation. When input signals are out of phase, non-coherent or have amplitude unbalance this causes a cancellation across the isolation resistors resulting in power dissipation. Since these devices are most commonly used as dividers, typical industry designs utilize low power alumina surface mount resistor chips on a thermally insulative circuit board. However, maximum input for combining non-coherent signals on adjacent ports is:

(Rated input power of divider * 5%) / "N" # of input channels

If the rated power is exceeded, the chip resistors will heat up and degrade resulting in loss of port-to-port isolation and VSWR.

Output VSWR: Minimum voltage standing wave ratio of a power divider at any output port over the specified frequency range with all other ports terminated in 50 ohm loads.

Passivation: The formation of an insulated layer directly over a metal to protect the surface from contaminants, moisture or particles

Phase Balance: The maximum peak-to-peak phase difference (in degrees) between the output ports of a power divider over the specified frequency range.

PIM (Passive Intermodulation): Passive Intermodulation (PIM) occurs when two or more signals are present in a passive device (cable, connector, coupler, etc.) that exhibits a nonlinear response. The nonlinearity is typically caused by dissimilar metals or dirty/loose interconnects. Nonlinearity is typically not troublesome at low input signal levels, but if PIM is generated from a high power transmitter path to an adjacent receiver channel, desensitization will occur. A common PIM specification is typically -110 dBc or greater.

Power (Average): The maximum amount of mean (average) power of a modulated/pulsed signal a given component can dissipate at ambient temperature without degradation in performance.

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Power (Peak): Instantaneous power a given component can dissipate for a percentage of the duty cycle (typically 2%) without degradation in performance.

PTFE (PolyTetraFluoroEthylene): Used as an insulator in RF and microwave coaxial connectors because of its low & stable dielectric constant and loss factor over a wide temperature and frequency range.

Reactive Splitter: A broadband passive network that equally divides power applied to the input ports between any particular number of output ports without substantially affecting the phase relationship or causing distortion. Reactive splitters differ from Wilkinson power dividers as they provide no isolation between adjacent ports. Therefore, power entering any output of a reactive splitter will divide evenly between the adjacent and input ports.

Return Loss: When expressed in dB is the ratio of reflected power to incident power. It is a measure of the amount of reflected power on a transmission line when it is terminated or connected to any passive or active device. Once it is measured, it can be converted by equation to reflection coefficient which can be converted to VSWR.

RF – (Radio Frequency): Generally referring to any frequency at which the radiation of electromagnetic energy is possible typically above 50 MHz. Above 1000 MHz and up is considered microwave.

RF Leakage: The amount of energy which “leaks” or radiates from a connector and/or device. Typically tested at one frequency and expressed in dB. Very large negative values indicate that the device does not radiate much energy.

RoHS: (Restriction of Hazardous Substances) Directive adopted by the European Union in February 2003 with the specified limits for the following elements in the manufacture of various types of electronic and electrical equipment:

- Lead (Pb) < 0.1%
- Mercury (Hg) < 0.1%
- Cadmium (Cd) < 0.01%
- Hexavalent Chromium (CrVI) < 0.1%
- Polybrominated Biphenyls (PBB) < 0.1%
- Polybrominated Diphenyl Esters (PBDE) < 0.1%

Stripline: A transmission line consisting of a conductor above or between extended conducting surfaces. Higher frequencies or broadband devices tend to favor stripline technology.

Termination (RF Loads): Used at the end of a transmission line designed to absorb RF power with very little reflection, effectively terminating the line or port in its characteristic impedance. Terminations are used in a wide variety of measurement systems; any port of a multi-port microwave device that is not involved in the measurement should be terminated in its characteristic impedance in order to ensure an accurate measurement.

Temperature: The minimum and maximum ambient temperatures a given component can operate at and still meet all guaranteed specifications unless otherwise noted.

Torque:Recommended mating torque for industry standard connectors:

- SMA - 7 to 10 in-lbs
- Type-N – 12 to 15 in-lbs
- TNC – 12 to 15 in-lbs
- 7/16 DIN – 220 to 300 in-lbs

Transmission Line: The conductive connections between circuit elements which carry signal power. Wire, coaxial cable, microstrip and stripline traces and waveguide are common examples.

VSWR – (Voltage Standing Wave Ratio): The ratio of the incident signal compared to the reflected signal in a transmission line. VSWR cannot be directly measured, so a return loss measurement (expressed in dB) is taken of reflected power to incident power. Once it is measured, it can be converted by equation to reflection coefficient which can be converted to VSWR.

Wilkinson Power Divider: A passive device that equally splits an input signal to each output or combines signals to a common port. Wilkinson power divider differ from reactive splitters as the output ports are isolated, so signals entering one of the output ports will not interfere with signals on the adjacent port. The limiting factor for Wilkinson power dividers used as combiners is power dissipation. When input signals are out of phase, non-coherent or have amplitude unbalance this causes a cancellation across the isolation resistors resulting in power dissipation.

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Why Directional Couplers Are Better for High Power Measurements vs. Attenuators



Day-to-day field measurements of base station power has frustrated engineers and technicians alike because of the instability & uncertainty of measurement caused by using high power fixed attenuators to reduce the signal level into sensitive power meters. **Why?** Attenuators de-rate as input power increases and their case temperature rises, so full-power measurements are far different from the initial calibration point. **Directional couplers** have very low insertion loss and high directivity so the sampled power (at the coupled port) is **extremely stable** and isolated from changes in temperature or reflections as power levels increase. The unused power (and subsequent heat) is passed to the termination which is attached to the output of the coupler and away from your measurement path.

MECA has designed the **MFK-PMK-1 Power Measurement Kit** to replace high power attenuators as a means of reducing signal levels into sensitive power meters.

The kit features the following components:

- 1 each of a 500w, 30 dB, N-Female, 0.800 – 2.200 GHz, Directional Coupler (MECA 715-30-1.500V)
- 1 each of a 2w, N-Type Attenuators in 6, 10 & 20 dB (MECA 605-dB-1)
- 1 each of a 100w, N-Male Termination (MECA 490-1)

The additional attenuators can be added to the coupled port to optimize the input signal level into the power meter. The components are furnished in a hard-shell case with form-fitting foam inserts that eliminate concerns of damaging the RF components in transit. These sturdy cases can be stored in technician's vehicle or remote switch locations and are rugged enough to be stored among toolboxes and cable spools.

Power measurement kits are also available for TETRA/Public Safety (400 - 800 MHz) and WiMAX (2.000 - 4.200 GHz) applications



Build your own kit! Contact our Applications Engineers to design a customized kit for your unique applications.

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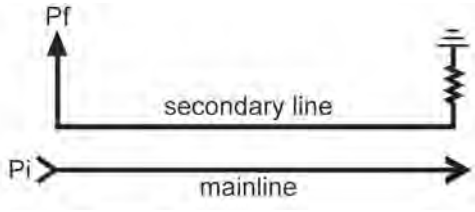
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How to Specify the Best Directional Coupler for Your Critical Application

Introduction

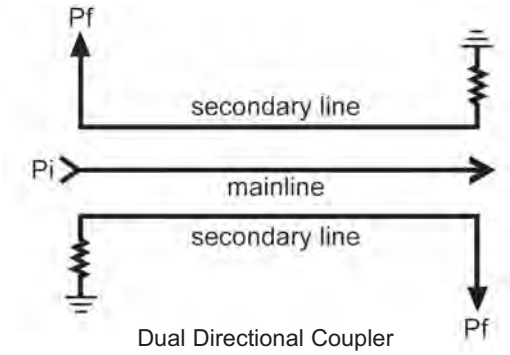
Over the years many different techniques have been utilized to bring about the physical realization of directional couplers. The scope of this article is limited to discussion of quarter-wavelength, coaxial, directional couplers, as this type of coupler represents a balanced compromise between functional range, performance and cost for most broadband applications covering up to an octave bandwidth.

The basic directional coupler is a four port junction that is used in a wide variety of microwave systems to satisfy almost any requirement for sampling incident and reflected microwave power conveniently and accurately with minimal disturbance to the transmission line. The basic configuration of a single directional coupler is shown in **figure 1** which illustrates two parallel transmission lines over a length of one-quarter wavelength, corresponding with the center frequency of operation. The main and secondary lines are separated by a calculated physical distance which determines the coupling factor of the device. The physically closer the lines are to each other, the more power will be introduced on the secondary line. The term **coupling** denotes how much of the input power is sampled to the coupled port and is defined as 10 times ratio of Incident Power to Forward Power **C = 10 log10(Pf/Pi)**. Typical coupling values found in practice are 3, 6, 10, 20, 30 & 40 dB; however, practically any coupling value may be obtained through proper design.



Pi = Incident Power
Pf = Forward Power

Single Directional Coupler
Fig. 1



Dual Directional Coupler
Fig. 2

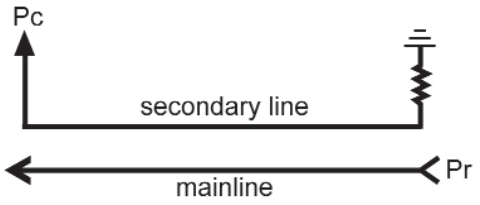
A dual directional coupler **(figure 2)** is essentially two single directional couplers connected back-to-back sharing a common mainline and providing two output ports with high isolation between those ports. This high isolation is critical for the accuracy of reflectometer set-ups that simultaneously sample input power to a device or load providing a ratio of signals for the purpose of determining return loss in decibels.

Directional Coupler Theory and Definitions

When power is introduced at the input port, all of the power appears at the output port except for the portion intended to be sampled. If power is reflected back from the output port, the ideal directional coupler does not allow any of the reflected power to appear on the secondary line.

Regrettably, the ideal directional coupler does not exist in our world. Consequently, a small amount of backward power will be coupled to the secondary line 180° out of phase from the incident wave canceling power on the secondary line and adding uncertainty to the measurement. The term **directivity (figure 3)** denotes the ratio of forward to backward coupling and is defined as 10 times the common log of the ratio of forward to backward power **D = 10 log10(Pf/Pb)**. The higher the value of directivity, the less backward power is sampled and measurement uncertainty is significantly improved. Directivity is the qualitative benchmark by which couplers are compared.

Since we are on the subject of measurement errors, we should also deal with the importance of Voltage Standing Wave Ratio (VSWR) because reflections will add and subtract to the incident signal causing uncertainty in the coupling factor. VSWR is defined as the ratio of incident to reflected signals and is ideally 1.00:1, meaning these signals are in phase and will not cancel. The better the **VSWR**, the less return loss is encountered. Unsatisfactory coupler VSWR will degrade measurement accuracy and is usually attributable to lesser quality connectors or inadequate design techniques.



Pc = Coupled Power
Pr = Reflected Power
Directivity
Fig. 3

The **frequency sensitivity** or “flatness” of a coupler is a measure of how coupling varies over a given frequency range. Optimum coupling frequency response is achieved by “centering” the design within the specified band of interest. Typical coupling flatness for a quarter-wavelength coupler operating over an octave band is within ± 0.75 dB of nominal.

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How to Specify the Best Directional Coupler for Your Critical Application... Continued

All things being equal, stronger coupling factors (3, 6 & 10 dB) exhibit greater flatness than weaker coupling factors (20 through 50 dB). When operating over frequency bands greater than an octave, the flatness tolerance may need to be relaxed due to the inherent characteristics of coupling roll-off.

Another important consideration when specifying a coupler is to ensure the device has minimal mainline insertion loss. Through virtue of their design, coaxial air-line couplers offer the lowest possible loss when inserted in a transmission path. Generally, the **insertion loss** of a coupler (or any microwave device for that matter) becomes more significant at higher frequency, namely because loss increases with frequency and higher frequency power sources are considerably more expensive. Accordingly, the criteria of low insertion loss will prevent precious power from being wasted on measurement components.

When specifying a directional coupler with a coupling factor stronger than 20 dB (3, 6 or 10 dB), consideration should also be given to the theoretical insertion loss caused by power coupling from the mainline. **Table 1** illustrates the amount of additional loss the device exhibits as a function of the proximity of the two transmission lines. It should also be noted that dual directional couplers exhibit twice the loss of single directional models because there are two secondary lines drawing power from the mainline.

Theoretical Mainline Insertion Loss Due to Coupling Factor (dB)							
Coupling Factor (dB)	3	6	10	20	30	40	50
Single Directional Coupler	3.01	1.2560	0.4560	0.0436	0.0043	0.0004	0.00004
Dual Directional Coupler	6.02	2.5120	0.9120	0.0872	0.0086	0.0008	0.00008

Table 1

Directional Coupler Solutions from MECA

MECA designs and manufactures both coaxial air-line and stripline couplers. Through virtue of their design, air-line couplers are high power capable and offer the lowest possible insertion loss. The unique matching techniques used in their construction also provide exceptionally high directivity and the best possible VSWR. Stripline couplers offer the advantage of multi-octave frequency coverage in miniature package sizes for improved packaging density. MECA offers a wide selection of directional couplers optimized to the microwave engineer's critical specifications with standard coupling values of 3, 6, 10, 20, 30 and 40 dB available from STOCK – 4 weeks after receipt of your order.

Conclusion

System performance will benefit greatly by keeping key concepts and parameters in mind such as directivity, insertion loss, frequency sensitivity and VSWR when selecting directional couplers for general applications such as line monitoring, power measurements and load source isolators.





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Hybrid Coupler Basics

3dB, 90° Hybrid Couplers

A 3 dB, 90° hybrid coupler is a four-port device that is used either to equally split an input signal with a resultant 90° phase shift between output ports or to combine two signals while maintaining high isolation between the ports.

The basic configuration of a hybrid coupler is shown in Figure 1 which illustrates two cross-over transmission lines over a length of one-quarter wavelength, corresponding with the center frequency of operation. When power is introduced at the **IN** port, half the power (3dB) flows to the 0° port and the other half is coupled (in the opposite direction) to the 90° port. Reflections from mismatches sent back to the output ports will flow directly to the ISO port or cancel at the input. This is why hybrids are so widely used to split high power signals in applications where unwanted reflections could easily damage the driver device.

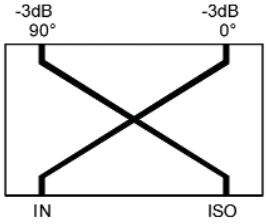
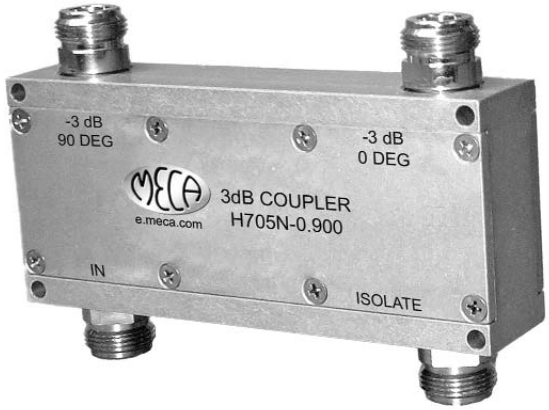


Figure 1

3 dB, 90° degree hybrids are also know as ***quadrature*** hybrids because a signal applied to any input, will result in two equal amplitude signals that are quadrant (90° apart). It also makes no difference which port is the input because the relationship at the outputs remains the same as these devices are electrically and mechanically symmetrical. This configuration ensures a high degree of isolation between the two output ports and the two input ports without unwanted interaction between them.



Common Applications

Carriers are often faced with the challenge of adding next generation services while trying to keep CAPX equipment costs low. An economical solution to this problem is to combine two transmitters with a hybrid coupler to share one antenna, thus freeing up another antenna for the overlay. The hybrid coupler provides excellent isolation between the receivers and group delay is extremely small having no effect on current receiver calibration or operation.

Hybrid couplers can also be used to split signals from tower top amplifiers to BTS receivers (remember mismatches on the input side have no effect on the output ports).

For in-Building distribution systems, hybrids are useful in carrying multiple carrier inputs because the high degree of isolation between the two output ports and the two input ports without unwanted interaction between carriers .

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Hybrid Coupler Basics... Continued

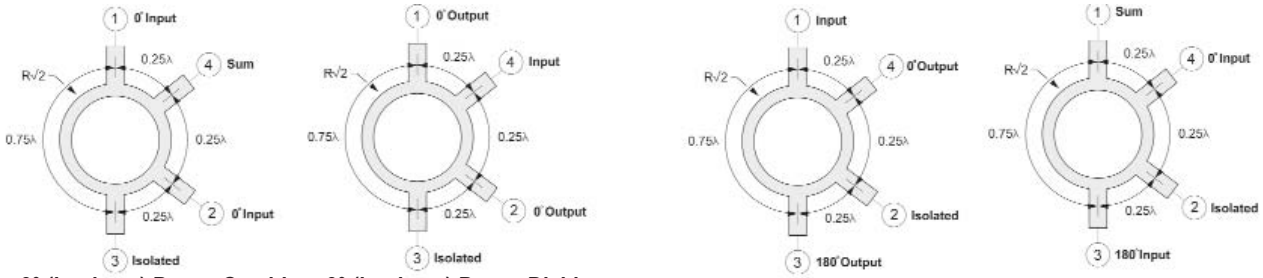


3dB, 180° Hybrid Ring Couplers

180° hybrid ring couplers (also called “rat race” couplers) are four-port devices used to either equally split an input signal or to sum two combined signals. An additional benefit of the hybrid ring is to alternately provide equally-split but 180 degree phase-shifted output signals.

The center conductor ring is 1½ wavelengths in circumference (or six ¼ wavelengths) and each port is separated by 90°. This configuration creates a lossless device with low VSWR, excellent phase & amplitude balance, high output isolation and match output impedances. The low loss, airline construction also makes the device a perfect choice for combining high power mixed signals.

Figure 2 shows all four possible port configurations and the resultant phase relationships at the outputs of the device. Again, it makes no difference which port is the input because the device is electrically and mechanically symmetrical.



0° (in-phase) Power Combiner 0° (in-phase) Power Divider **180° Power Combiner 180° Power Divider**

Figure 2

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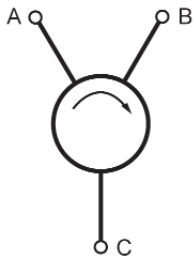
Isolator & Circulator Basics

An RF isolatoris a two-port ferromagnetic passive device which is used to protect other RF components from excessive signal reflection. Isolators are common place in laboratory applications to separate a device under test (DUT) from sensitive signal sources. An RF circulatoris a three-port ferromagnetic passive device used to control the direction of signal flow in a circuit and is a very effective, low-cost alternative to expensive cavity duplexers in base station and in-building mesh networks. Examples of both applications will be covered later in this article.



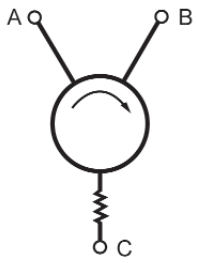


To understand how these components control the signal flow, think of a cup of water into which you place a spoon and stir in a clockwise motion. If you sprinkle some pepper into the cup and continue to stir, you will notice that the pepper easily follows the circular motion of the water. You can also see that it would be impossible for the pepper to move in a counterclockwise direction because the water motion is just too strong. The interaction of the magnetic field to the ferrite material inside isolators and circulators creates magnetic fields similar to the water flow in the cup. The rotary field is very strong and will cause any RF/microwave signals in the frequency band of interest at one port to follow the magnetic flow to the adjacent port and not in the opposite direction.



Circulator

FIGURE 1



Isolator

Figure 1 shows the schematics for a circulator and an isolator. Notice how an isolator is a circulator with the third port terminated. The arrows represent the direction of the magnetic fields and the signal when applied to any port of these devices. Example: If a signal is placed at port A, and port B is well matched, the signal will exit at port B with very little loss (typically 0.4dB). If there is a mismatch at port B, the reflected signal from port B will be directed to port C.

Isolation

An important consideration when specifying an isolator or circulator is to ensure the device has adequate isolation for your given application. Isolation is a unit of measure (in dB) that states the separation of signal levels on adjacent ports of a device. The greater the isolation value, the less interference from a signal on one port is present at the other. The amount of isolation is directly affected by the VSWR presented at port 3 of the isolator. If the match on port 3 is poor, you can expected isolation below 10 dB, but if the match is improved to 1.10:1 by using a good termination device in the circuit, then the isolation would improve to over 20 dB.

Insertion Loss

Another important consideration when specifying circulators and isolators is to ensure the device has minimal insertion loss when inserted in a transmission path. Generally, the insertion loss of a circulator/isolator (or any microwave device for that matter) becomes more significant at higher frequency, namely because loss increases with frequency and higher frequency power sources are considerably more expensive. Accordingly, the criteria of low insertion loss will prevent precious power from being wasted.

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Isolator & Circulator Basics... Continued





Common Applications

As described earlier, a common application for a circulator is as an inexpensive duplexer (a transmitter and receiver sharing one antenna). Figure 2 shows that when the transmitter sends a signal, the output goes directly to the antenna port and is isolated from the receiver. Good isolation is key to ensure that a high-power transmitter output signal does not get back the receiver front end as is governed by the return loss of the antenna. In this configuration, all signals from the antenna go straight to the receiver and not the transmitter because of the circular signal flow (remember the cup of water).

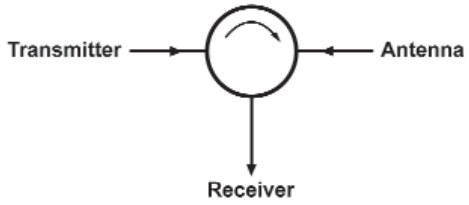


FIGURE 2 - Duplexor

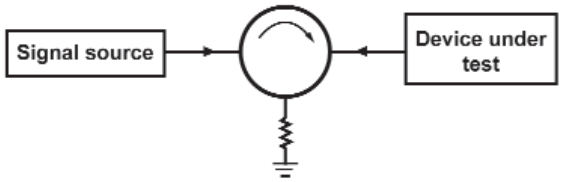


FIGURE 3

Figure 3 illustrates the most common application for an isolator. The isolator is placed in the measurement path of a test bench between a signal source and the device under test (DUT) so that any reflections caused by any mismatches will end up at the termination of the isolator and not back into the signal source. This example also clearly illustrates the need to be certain that the termination at the isolated port is sufficient to handle 100% of the reflected power should the DUT be disconnected while the signal source is at full power. If the termination is damaged due to excessive power levels, the reflected signals will be directed back to the receiver because of the circular signal flow.

Power Ratings

MECA isolators are designed with an internal 10w load capability. However, the recommended maximum power that our devices can sustain is 2w to allow for de-rating and heat transfer. Higher isolator power levels can be achieved utilizing our circulators with an external load which would make the limiting factor the ferrite material and not an internal resistor. As previously outlined, if the match on the terminated port is poor, you can expect isolation below 10 dB, but if the match is improved to 1.10:1 by using a good termination device in the circuit, then the isolation would improve to over 20 dB. MECA manufactures an extensive selection of high power, low loss RF loads. Please consult with a MECA applications engineer to discuss your requirements and select the proper termination for your high power isolator.

Special Handling & Storage

Isolators and circulators have magnets that produce strong fields to control signal flow. As is the case with any magnet, when placed in close proximity to another, the magnetic fields oppose one another, and over time, will weaken the strength of the magnets. This is called degaussing. A similar effect can be seen when stored in close proximity to ferrous metals. Special care should be taken when storing any isolators/circulators and MECA recommends that the devices should be separated by 3 inches from each other and all ferrous surfaces to reduce degaussing effects.

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Why Most Power Dividers Are Not Suitable For Combining

"We can help you avoid costly mistakes!"

The limiting factor for most Wilkinson power dividers used as combiners is power dissipation. When input signals are out ofphase, non-coherent or have amplitude unbalance this causes a cancellation across the isolation resistors resulting in power dissipation.

Since these devices are most commonly used as dividers, typical industry designs utilize low power alumina surface mount resistor chips on a thermally insulative circuit board. However, maximum input for combining non-coherent signals on adjacent ports is:(rated input power of divider * 5%) / "N" # of input channels. If the rated power is exceeded, the chip resistors will heat up and degrade resulting in loss of port-to-port isolation and VSWR.



The Solution...

M 75 Watt Series



MECA's 75 Watt M-Series Power Divider/Combiners overcome these limits by employing higher power resistors mounted on a high thermal conductivity substrate having three times the heat transfer capability of ordinary circuit board materials which increases max input for combining non-coherent signals on adjacent ports.

Eight models are available covering the frequency range from 0.800 - 2.200 GHz. Choose from 2-way, 3-way, 4-way, 8-way and 16-way configurations in N-Female and SMA-Female connector styles.

***All units rated for maximum input power as a divider or balanced combiner with load VSWR of 1.20:1 or better. To calculate unbalance combining use the following formula: (rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining.** **Higher power (H-Series) combiners listed on page 74.**

Catalog Number	N-Way	Freq. (GHz)	Pwr* (W)	(W) Isolation (dB)		Insertion Loss (dB)		Amp. Balance (dB) (Max)	Phase Balance (degrees) (Max)	VSWR				Weight (oz)	Outline Drawing
										Input		Output			
				Typ	Min	Typ	Min			Typ	Min	Typ	Min		
SMA-Female															
M2S-1.500W	2-Way	0.8-2.2	75	27	22	0.30	0.40	0.1	2	1.15:1	1.25:1	1.10:1	1.20:1	1.61	1
M4S-1.500W	4-Way	0.8-2.2	75	25	20	0.60	0.80	0.2	4	1.25:1	1.35:1	1.15:1	1.25:1	3.72	3
M8S-1.500W	8-Way	0.8-2.2	75	27	22	0.60	1.00	0.2	6	1.30:1	1.40:1	1.10:1	1.20:1	7.38	5
M16S-1.500W	16-Way	0.8-2.2	75	25	20	1.20	1.50	0.4	8	1.30:1	1.40:1	1.10:1	1.20:1	16.32	8
N-Female															
M2N-1.500W	2-Way	0.8-2.2	75	27	22	0.30	0.40	0.1	2	1.15:1	1.25:1	1.10:1	1.20:1	5.46	2
M3N-0.900	3-Way	0.8-1.0	75	40	30	0.30	0.40	0.2	3	1.10:1	1.15:1	1.10:1	1.15:1	7.77	7
M4N-1.500W	4-Way	0.8-2.2	75	25	20	0.60	0.80	0.2	4	1.25:1	1.35:1	1.15:1	1.25:1	10.00	4
M8N-1.500W	8-Way	0.8-2.2	75	27	22	0.80	1.20	0.2	8	1.25:1	1.35:1	1.10:1	1.20:1	1.35	6

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Reactive RF Splitter Basics

Introduction

Reactive splitters have long been the prevailing signal distribution component for antenna arrays and radiating cable systems for in-building deployments because of their low loss and rugged nature. Unlike Wilkinson power dividers that use internal resistors to provide isolation between the output paths, reactive splitters are quarter wave length lines matched to split signals evenly to the output paths. This characteristic allows for efficient, high power, broadband operation with minimal solder joints and low passive intermodulation (PIM) characteristics.



RF Splitter
Made in USA

Why reactive splitters are not suitable for combining

Reactive splitters, by design, do not provide isolation between the output ports and exhibit very poor VSWR looking back into the device, so they should not be used as combiners. Applications that employ a need for both combining and dividing benefit greatly by use of a Wilkinson power divider/combiner, but special care must be taken to not damage the input resistor.

Most industry Wilkinson power dividers are rated between 10–30 watts but can only handle a few mW as an unbalanced combiner. As a general rule to calculate combining rated power, the following formula is used:

(rated input power of divider * 5%) / "N" # of input channels = max input at each port for combining

For higher power Wilkinson combining applications, check out MECA H-Series Combiners.

Ordering

MECA introduces a new line of compact, high-power capable (700 watts) reactive splitters covering all wireless frequencies from 0.700 - 2.700 GHz. Available in 2-way and 3-way configurations fitted with 7/16 DIN , N or SMA-Female connectors at all ports. Indoor or Outdoor use (IP65).

This RF power splitter series provides a low loss, equal power split at all output ports while maintaining excellent amplitude and phase balance. MECA's unique design eliminates the need for extraneous (often misplaced) mounting hardware

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RoHS (Restriction of Hazardous Substances) Declaration

To the best of our knowledge all products manufactured by MECA Electronics that are designated as RoHS compliant, meet the requirements for compliance to the RoHS (Restriction of Hazardous Substances) Directive as set forth by the European Union with the specified limits for the following elements:

- Lead (Pb) < 0.1% (< 1000 PPM)
- Mercury (Hg) < 0.1% (< 1000 PPM)
- Cadmium (Cd) < 0.01% (< 100 PPM)
- Hexavalent Chromium (CrVI) < 0.1% (< 1000 PPM)
- Polybrominated Biphenyls (PBB) < 0.1% (< 1000 PPM)
- Polybrominated Diphenyl Esters (PBDE) < 0.1% (< 1000 PPM)

Common Frequency Bands

Frequency Band Designation	Typical Frequency Range
VHF Band	100 to 300 MHz
UHF Band	300 to 1000 MHz
Terrestrial Trunked Radio (TETRA)	300 to 1000 MHz
CDMA 450	420 to 495 MHz
700 MHz Public Safety Band	764 to 869 MHz
800 MHz Cellular	824 to 849 MHz; 869 to 894 MHz
GSM 850 / CDMA 850	824 to 849 MHz; 869 to 894 MHz
GSM 900	890 to 915 MHz; 935 to 960 MHz
L-Band	1.000 to 2.000 GHz
Global Positioning System (GPS)	L1: 1575.42 MHz; L2: 1227.60 MHz
GSM 1800	1710 to 1785 MHz; 1805 to 1880 MHz
GSM 1900 / WCDMA 1900	1850 to 1910 MHz; 1930 to 1990 MHz
PCS 1900	1850 to 1910 MHz; 1930 to 1990 MHz
UMTS	1710 to 1755; 2110 to 2155 MHz
WCDMA-3G	1920 to 1980 MHz; 2110 to 2170 MHz
Advanced Wireless Services (AWS)	1710 to 1755; 2110 to 2155 MHz
Radio Frequency Identification (RFID)	860 to 960 MHz; 2.4 to 2.5 GHz
IEEE802.11b/g	2.4 to 2.5 GHz
Industrial, Scientific and Medical (ISM)	2.4 to 2.5 GHz
WiFi	2.4 to 2.5 GHzv
WiMAX	2.3 GHz; 2.5 GHz; 3.5 GHz; 5.8 GHz
S-Band	2.000 to 4.000 GHz
4.9 GHz Public Safety	4.940 to 4.990 GHz
C-Band	4.000 to 8.000 GHz
X-Band	8.000 to 12.400 GHz
Ku-Band	12.400 to 18.000 GHz

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VSWR vs Return Loss									
VSWR	RL(dB)	VSWR	RL(dB)	VSWR	RL(dB)	VSWR	RL(dB)	VSWR	RL(dB)
1.001	66.025	1.120	24.943	1.320	17.207	2.400	7.707	9.000	1.938
1.002	60.009	1.130	24.298	1.330	16.997	2.500	7.360	9.500	1.835
1.003	56.491	1.140	23.686	1.340	16.755	2.600	7.044	10.000	1.743
1.004	53.997	1.50	23.127	1.350	16.540	2.700	6.755	11.000	1.584
1.005	52.063	1.160	22.607	1.400	15.563	2.800	6.490	12.000	1.451
1.006	50.484	1.170	22.120	1.450	14.719	2.900	6.246	13.000	1.339
1.007	49.149	1.180	21.664	1.500	13.979	3.000	6.021	14.000	1.243
1.008	47.993	1.190	21.234	1.550	13.324	3.250	5.524	15.000	1.160
1.009	46.975	1.200	20.828	1.600	12.793	3.500	5.105	20.000	0.869
1.010	46.064	1.210	20.443	1.650	12.207	3.750	4.747	25.000	0.695
1.020	40.086	1.220	20.079	1.700	11.725	4.000	4.437	30.000	0.579
1.030	36.607	1.230	19.732	1.750	11.285	4.500	3.926	35.000	0.496
1.040	34.151	1.240	19.401	1.800	10.881	5.000	3.522	40.000	0.434
1.050	32.256	1.250	19.085	1.850	10.509	5.500	3.194	45.000	0.386
1.060	30.714	1.250	18.783	1.900	10.163	6.000	2.923	50.000	0.347
1.070	29.417	1.270	18.493	1.950	9.842	6.500	2.694	60.000	0.290
1.080	28.299	1.280	18.216	2.000	9.542	7.000	2.499	70.000	0.248
1.090	27.318	1.290	17.949	2.100	8.999	7.500	2.330	80.000	0.217
1.100	26.444	1.300	17.692	2.200	8.519	8.000	2.183	90.000	0.193
1.110	25.658	1.310	17.445	2.300	8.091	8.500	2.053	100.000	0.174

VSWR to return loss: $RL(dB) = 20\log_{10}\left(\frac{VSWR + 1}{VSWR - 1}\right)$

% Input Power Attenuated			
dB	%	dB	%
1	20.57	12	93.70
2	36.90	13	94.98
3	49.88	14	96.02
4	60.19	15	96.84
5	68.38	16	97.58
6	74.88	17	98.00
7	80.05	18	98.42
8	84.15	19	98.74
9	87.41	20	99.00
10	90.00	30	99.90
11	92.06	40	99.99

% Input Attenuated = $100\% \left(1-10^{\frac{-dB}{10}}\right)$
(where attenuation is expressed in -dB)

Attenuation (dB) = $10\log_{10}\frac{P_{Input}}{P_{Output}}$

Common Coupling Ratios	
Coupling Value	Ratio (%)
3 dB	50/50
6 dB	75/25
8 dB	85/15
10 dB	90/10
15 dB	97/3
20 dB	99/1

The first number of the ratio is the % of power that passe throught the device to the output port. The second is the % of power at the coupled port.

Power Conversion									
dBm	Watts	dBm	Watts	dBm	Watts	dBm	Watts	dBm	Watts
0	1.0 mW	13	20 mW	26	398 mW	39	8.0 W	52	158 W
1	1.3 mW	14	25 mW	27	500 mW	40	10 W	53	200 W
2	1.6 mW	15	32 mW	28	630 mW	41	13 W	54	251 W
3	2.0 mW	16	40 mW	29	800 mW	42	16 W	55	316 W
4	2.5 mW	17	50 mW	30	1.0 W	43	20 W	56	398 W
5	3.2 mW	18	63 mW	31	1.3 W	44	25 W	57	501 W
6	4 mW	19	79 mW	32	1.6 W	45	32 W	58	631 W
7	5 mW	20	100 mW	33	2.0 W	46	40 W	59	794 W
8	6 mW	21	126 mW	34	2.5 W	47	50 W	60	1000 W
9	8 mW	22	158 mW	35	3.2 W	48	63.1 W	61	1260 W
10	10 mW	23	200 mW	36	4.0 W	49	79.4 W	62	1580 W
11	13 mW	24	250 mW	37	5.0 W	50	100 W	63	2000 W
12	16 mW	25	316 mW	38	6.3 W	51	126 W	64	2510 W

dBm to watts: $dBm = 10\log_{10} mW$

Input Power Attenuated							
dB	%	dB	%	dB	%	dB	%
1	20.57	11	92.06	21	99.21	31	99.92
2	36.90	12	93.70	22	99.46	32	99.94
3	49.88	13	94.98	23	99.59	33	99.95
4	60.19	14	96.02	24	99.60	34	99.96
5	38.38	15	96.84	25	99.73	35	99.97
6	74.88	16	97.58	26	99.75	36	99.975
7	80.05	17	98.00	27	99.80	37	99.981
8	84.15	18	98.42	28	99.84	38	99.984
9	87.41	19	98.74	29	99.87	39	99.987
10	90.00	20	99.00	30	99.90	40	99.990

Theorical Mainline Power Split Due to Coupling Factor (dB)						
Coupling Factor	40 dB	30 dB	20 dB	10 dB	6 dB	3 dB
Single	0.0004	0.0043	0.0436	0.4560	1.2560	3.01
Dual	0.0008	0.0086	0.0872	0.9120	2.5120	~

Theorical Mainline Power Split Due to Coupling Factor (dB)							
2-Way	3-Way	4-Way	6-Way	8-Way	9-Way	12-Way	16-Way
3.01	4.77	6.02	7.78	9.03	9.54	10.79	12.04

Frequency Band Designation										
VHF	UHF	L	S	C	X	K	K	K	Millimeter	

Frequency (GHZ)

0.1 0.15 0.2 0.3 0.5 0.75 1 1.5 2 3 4 5 6 8 10 15 20 30 40 50 60 75 100

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1) **Quotations**: Unless otherwise specified, all quotations are valid for a period of 60 days subject to change and availability of materials at order inception.

2) **How to Order**: When placing an order, please state both the catalog number and description. For example: 715-20-1.500V for 20 dB, 0.8 - 2.2 GHz, dual-band, V-Line coupler. If any custom features are required, please contact our Application Engineers and a special part number will be assigned. Orders may be placed factory direct or through a MECA sales representative in your area. Orders will be accepted via phone, fax, e-mail or on-line pending receipt of a confirming purchase order (when applicable).

3) **Payment Terms**: MECA accepts VISA, MasterCard and American Express. Net 30 days for customers with established accounts. Shipments to unrated firms may be C.O.D. unless an advanced payment has been secured. International orders are prepaid unless an account has been established in advance.

Additional Charges: All orders are subject to $6.95 Fee for order processing. This fee is waived for customers with established NET 30 Terms. MECA will charge a $25 Fee for Bank Transfers on International Orders.

4) **Minimum Orders**: The minimum order accepted is $250 domestic and $500 international.

5) **Delivery**: Delivery is based on the prevailing conditions at the time of quotation or order. Agreements as to delivery are subject to contingencies of fire, accident or cause of delay beyond the control of MECA Electronics, Inc.

6) **Shipping**: All sales are F.O.B. Denville, NJ. When mode of transportation is not specified, shipment will be made via the best carrier using our discretion.

Preferred Methods of Shipment:
1. UPS Ground, UPS 3-Day Air (Orange), UPS 2-Day Air (Blue), Next-Day Air (Red).
2. Federal Express Economy, Standard or Priority One.
3. UPS International Services: UPS Worldwide Expedited (Blue), UPS Express (Red).
4. Federal Express International Services.

7) **Quality Assurance**: MECA Electronics, Inc. is an ISO 9001:2000 certified company. Certified by Intertek. Certificate No. CERT US-2846A. Click here to view the certificate.

8) **Source Inspection**: If Source Inspection is required, a surcharge of 5% is applicable or a $500.00 minimum charge, per item, whichever is greater.

9) **Warranty**: MECA Electronics, Inc. warrants products of its manufacture to be free from defects in material and workmanship under conditions of normal use. If within 36 months of delivery determined by the manufacturing date code, and after prepaid return by the owner, any MECA product that is found to be defective, MECA shall, at its option, repair or replace the defective item. This warranty does not apply to products that have been disassembled, misused, modified or subjected to conditions exceeding the applicable specifications or ratings. MECA reserves the right to make design changes, without notice, on any of its products without any obligation to make same or similar changes to items previously purchased. In no event does MECA assume liability for installation labor or for consequential damages. This warranty is the extent of the obligation or liability assumed by MECA, with respect to products, and no other warranty or guarantee is either expressed or implied

10) **Past Warranty Period**: MECA Electronics, Inc. products that have exceeded the 36 month warranty period and are returned to the factory for repair shall be repaired or replaced at a determined cost billed to the customer. The customer shall receive an estimate of the repair cost prior to effecting repairs.

11) **Returned Material**: All returned items are inspected upon receipt for quantity, physical condition and electrical function. All claims for shortage must be made within thirty (30) days of date of shipment from MECA's facility. Title to goods passes to the buyer upon delivery to carrier, and risk of loss or damage shall thereafter rest with the buyer. The buyer must make claims for damage or loss while material is in transit. Returned products will not be accepted without a Return Material Authorization (RMA) number. This number may be obtained by calling our quality assurance department. Freight charges for returned material are the responsibility of the buyer. In addition, an evaluation fee will be charged to the buyer to cover inspection and testing cost for any item returned by the buyer, that is found to be within specifications and/or otherwise deemed to be within the terms of the original purchase.

12) **Cancelled Orders/Restocking Charge**: Cancelled orders and/or returned items are subject to a 25% restocking charge (of sale price) or a $125.00 minimum charge per item (whichever is greater) for standard catalog items. This charge may vary at the discretion of MECA Electronics, Inc depending on the amount of materials on order at the time of cancellation and the resulting cancellation charges from our supply chain. All sales are final for non-catalog items.

13) **Federal Manufacturing Code**: 22424/1NA98

14) **Return Address**

Customer Service Department
MECA Electronics, Inc.
459 East Main Street,
Denville, NJ 07834-2515
Phone # 973-625-0661

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