

SPINNER PMR / TETRA Portfolio



Reliable Components
for Critical Communication

HIGH FREQUENCY PERFORMANCE WORLDWIDE
www.spinner-group.com





Reliable Components for Critical Communications

Worldwide there is a growing need for essential services like police forces, fire departments, and disaster and emergency management teams. Communication within and between these organizations needs to be reliable and free of glitches, especially when they go into action. The technology involved also has to meet demanding requirements, because lives can be at stake.

Professional Mobile Radio (PMR) or Terrestrial Trunked Radio (TETRA) networks are subject to the laws and regulations of individual countries and can therefore be implemented in different ways. Some networks are completely separate from commercial mobile networks, while in other cases the two types are combined.

Especially in the case of in-building networks, PMR services may be delivered together with other mobile communication services via the same Distributed Antenna System (DAS). Here it's especially important to use high-quality components, because issues like passive inter-

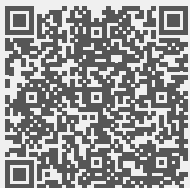
modulation can cause considerable problems in voice and data communications. All SPINNER combining solutions are passive, which eliminate most potential sources of errors. This is an important prerequisite for ensuring highly reliable operation.

At SPINNER we have been setting standards with our RF technology products for more than 75 years, helping to drive progress in the information age. We are dedicated to consistently providing top-quality products and outstanding service, which are crucial for ensuring satisfied customers.



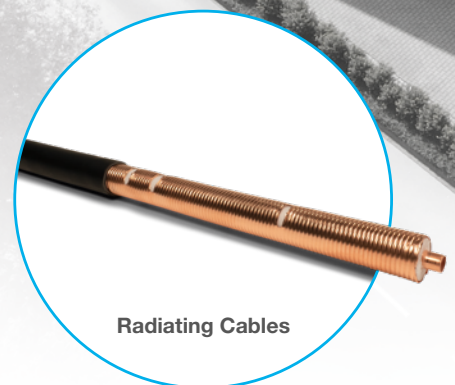
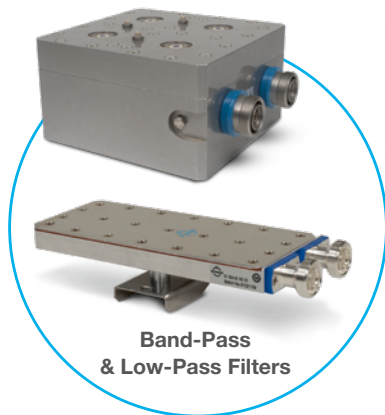
PMR / TETRA Portfolio

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For more information on PMR/TETRA products, please use our [Product Finder](#).

Reliable Components for Critical Communication





**Multiband
Combiners**



**Multiband Combining
Systems**



**Loads
and Attenuators**



RF Connectors



**Directional
Couplers**

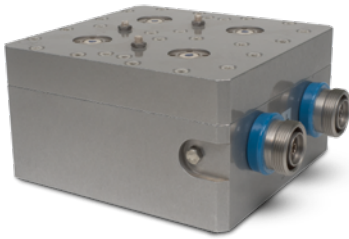


Jumpers

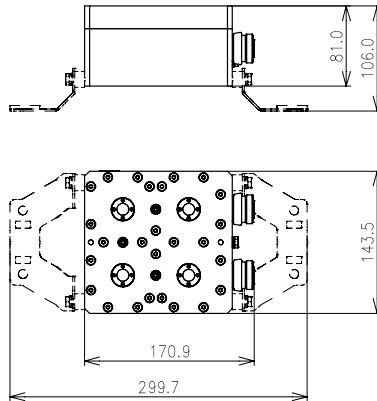


Adapters

Filters



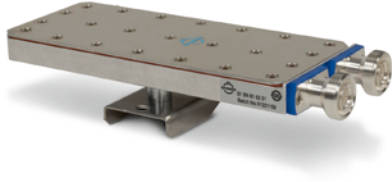
BN 616431 / BN 616430



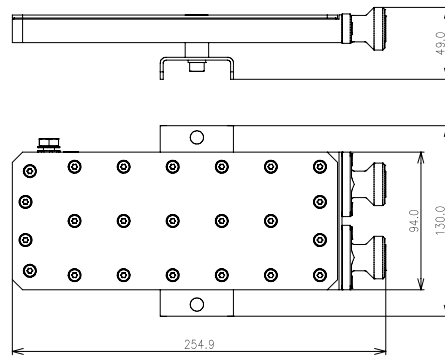
Band-Pass Filters

Part Number (BN)	616431	616430
Pass-band	380 - 385 MHz	390 - 395 MHz
Pass-band loss	≤ 0.50 dB	
Stop-band	390 - 395 MHz 890 - 960 MHz	380 - 385 MHz 890 - 960 MHz
Stop-band loss	≥ 30 dB @ 390 – 395 MHz ≥ 50 dB @ 890 – 960 MHz	≥ 30 dB @ 380 – 385 MHz ≥ 50 dB @ 890 – 960 MHz
Passive intermodulation (IM3) @ 2 x 20 W	≤ -150 dBc; typ. ≤ -160 dBc	
VSWR	≤ 1.25	
Power rating	≤ 200 W	
Connectors	7-16 female	
Temperature range	-5 °C ... $+60$ °C	
Degree of protection (mated)	IP 54	
Weight	~ 1.7 kg	
Mounting brackets (BN)	B07787	

Filters



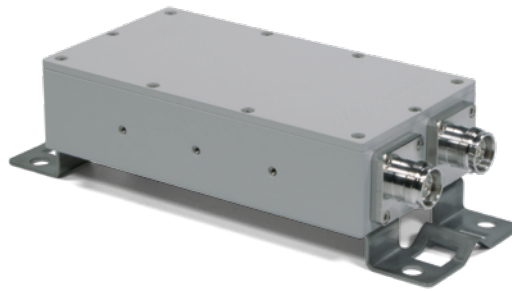
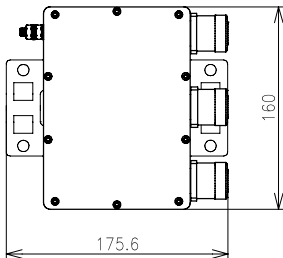
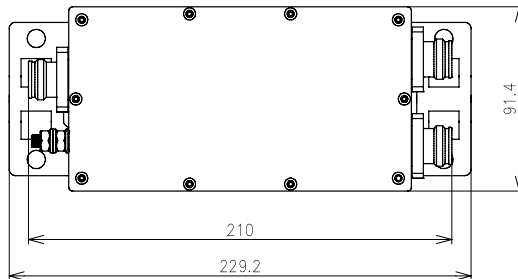
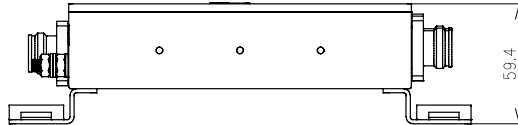
BN 616331 / BN 616439



Low-Pass Filters

Part Number (BN)	616331	616439
Pass-band	0 - 500 MHz	0 - 614 MHz
Pass-band loss	≤ 0.20 dB	
Stop-band	800 - 2200 MHz	800 - 2170 MHz
Stop-band loss	≥ 45 dB @ 800 - 876 MHz ≥ 55 dB @ 876 - 2200 MHz	≥ 30 dB @ 800 - 860 MHz ≥ 40 dB @ 860 - 960 MHz ≥ 70 dB @ 1710 - 2170 MHz
Passive intermodulation (IM3) @ 2 x 20 W	≤ -150 dBc; typ. ≤ -160 dBc	
VSWR	≤ 1.25 @ 0 - 380 MHz ≤ 1.14 @ 380 - 500 MHz	≤ 1.40 @ 0 - 380 MHz ≤ 1.15 @ 380 - 614 MHz
Power rating	≤ 150 W	
Connectors	7-16 female	
Temperature range	-40 °C ... $+65$ °C	
Degree of protection (mated)	IP 65	
Weight	~ 1.4 kg	
Mounting brackets	Included	

Combining

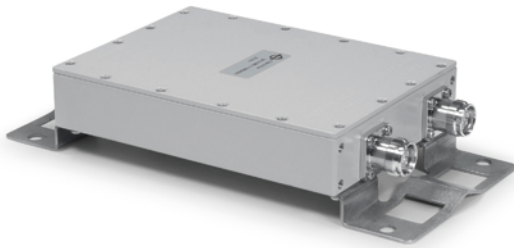
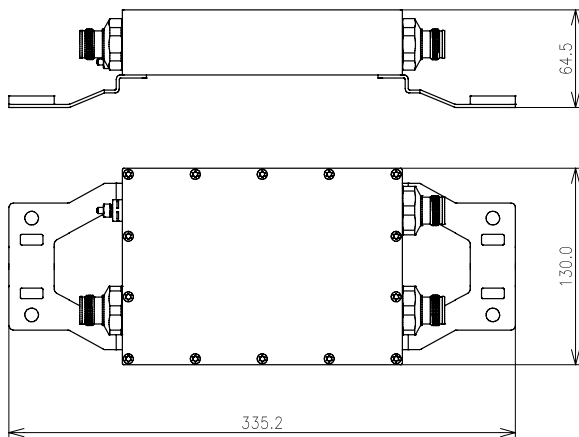
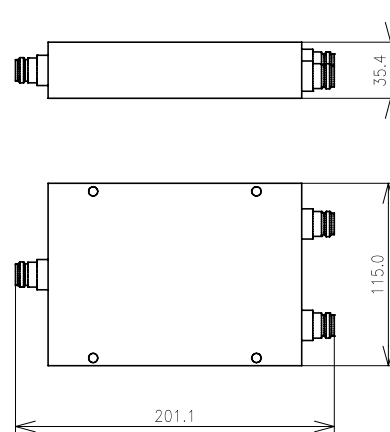
**BN 572674****BN 570732**

Multiband Combiners - Diplexers

Part Number (BN)	572674	572677	572668	572669	570732	570756
Version	Single	Double	Single	Double	Single	Double
Frequency range Port 1 Port 2 Port 3	DC - 2170 MHz 2496 - 2690 MHz Common				DC - 2700 MHz 3300 - 3800 MHz Common	
Insertion loss Port 1 -> port 3	≤ 0.30 dB				≤ 0.50 dB	
Isolation	≥ 50 dB					
Passive intermodulation (IM3) @ 2 x 20 W	≤ -160 dBc				≤ -155 dBc	
VSWR	≤ 1.25					
Power rating* Port 1 Port 2	≤ 600 W ≤ 100 W		≤ 500 W ≤ 100 W		≤ 300 W ≤ 60 W	
DC and AISG	1 A (port 1 -> port 3)					
Connectors	7-16 female		4.3-10 female			
Temperature range	-40 °C ... +55 °C					
Degree of protection (mated)	IP 67				IP 65	
Weight	~ 2.5 kg	~ 5.5 kg	~ 2.5 kg	~ 5.5 kg	~ 6 kg	~ 12 kg
Mounting bracket	Included					

* (CW) max. per input port

Combining

**BN 570744****BN 572924**

Multiband Combiners - Diplexers

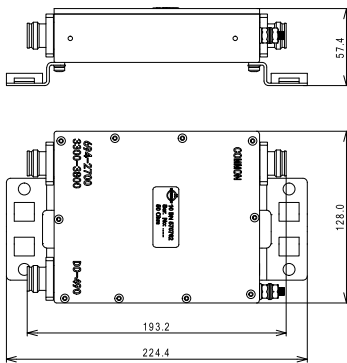
Part Number (BN)	570744	570785	572924
Version	Single	Double	Single
Frequency range Port 1 Port 2 Port 3	350 - 960 MHz 1710 - 3800 MHz Common		440 - 475 MHz 870 - 960 MHz Common
Insertion loss	≤ 0.50 dB; typ. ≤ 0.30 dB		≤ 0.20 dB
Isolation	≥ 50 dB; typ. ≥ 60 dB		≥ 60 dB
Passive intermodulation (IM3) @ 2 x 20 W	≤ -155 dBc; typ. ≤ -160 dBc		≤ -150 dBc; typ. ≤ -160 dBc
VSWR	≤ 1.25 ; typ. ≤ 1.20		≤ 1.15
Power rating*	≤ 250 W		≤ 50 W
DC and AISG	1 A (port 1 -> port 3)		N/A
Connectors	4.3-10 female		N female
Temperature range	-20 °C ... $+60$ °C		-40 °C ... $+70$ °C
Degree of protection (mated)	IP 67		IP 60
Weight	~ 2.0 kg		~ 1.3 kg
Mounting brackets	Included		N/A

* (CW) max. per input port

Combining



BN 570762

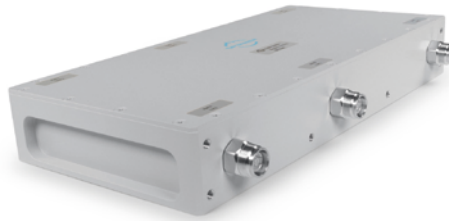
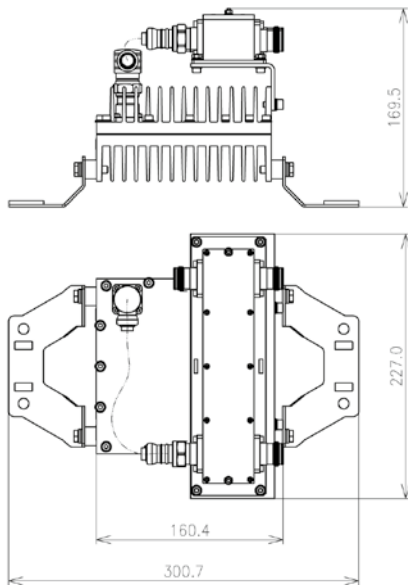
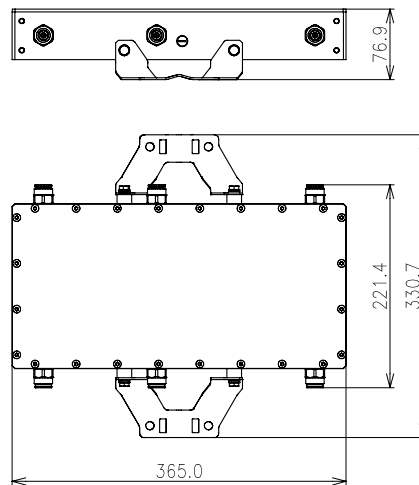


Multiband Combiners - Diplexers

Part Number (BN)	570762	570763
Version	Single	Double
Frequency range Port 1,3 Port 2,4	DC - 490 MHz 694 - 270 MHz & 3300 - 3800 MHz	
Insertion loss Port 1 -> port 3 Port 2 -> port 3	≤ 0.30 dB	
Isolation Port 1 -> port 2 Port 3 -> port 4	≥ 50 dB	
Passive intermodulation (IM3) 3rd order @ 2 x 20 W	≤ -155 dBc; typ. ≤ -160 dBc N/A @ DC - 490 MHz	
VSWR	≤ 1.25	
Power rating*	≤ 500 W	
DC and AISG Port 1 -> port 5 / port 3 -> port 6 Port 2 -> port 5 / port 4 -> port 6	Max. 1A per input max. 60V DC (AISG standard, 2.0, § 6.4) N/A	
Connectors	4.3 - 10 female	
Temperature range	-40 °C ... +65 °C	
Degree of protection (mated)	IP 65 (outdoor)	
Weight	~ 2.1 kg	~ 4.5 kg
Mounting brackets	Included	

* (CW) max. per input port

Combining

**BN 753388****BN 570754**

2 : 1 / 3 : 3 Multiband Combining Systems

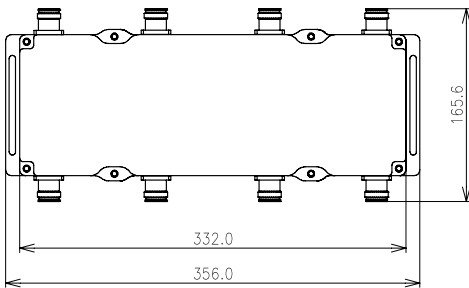
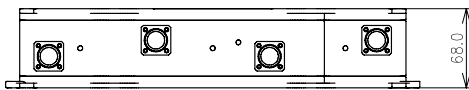
Part Number (BN)	753388	570754	570754F001
Version (input : output)	2 : 1	3 : 3	
Frequency range	350 - 2700 MHz	380 - 3800 MHz	88 - 3800 MHz
Insertion loss	3.0 dB ± 0.9 dB	5.0 dB ± 1.2 dB	
Isolation	≥ 23 dB	≥ 28 dB; typ. ≥ 30 dB	
Passive intermodulation (IM3) @ 2 x 20 W	≤ 140 dBc @ 350 - 694 MHz ≤ 150 dBc @ 694 - 2700 MHz	≤ -160 dBc; typ. ≤ -165 dBc	
VSWR	≤ 1.25		
Power rating*	≤ 80 W	≤ 500 W	
Connectors	4.3-10 female		
Temperature range	-40 °C ... +50 °C	-40 °C ... +55 °C	
Degree of protection (mated)	IP 65		
Weight	~ 3.7 kg	~ 6.6 kg	
Mounting brackets	Included		

* (CW) max. per input port

Combining



BN 570680



4 : 4 Multiband Combining Systems

Part Number (BN)	570755	570755F001	570680	570680F001
Version (input : output)	4 : 4			
Frequency range	380 - 3800 MHz	88 - 3800 MHz	350 - 2700 MHz	
Insertion loss	6.1 dB ± 1.2 dB		6.0 dB ± 1.5 dB	
Isolation	≥ 28 dB; typ. ≥ 30 dB		≥ 23 dB	
Passive intermodulation (IM3) @ 2 x 20 W	≤ -160 dBc; typ. ≤ -165 dBc		≤ -155 dBc	≤ -160 dBc; typ. ≤ -165 dBc
VSWR	≤ 1.25		≤ 1.25; typ. ≤ 1.2	
Power rating*	≤ 500 W		≤ 400 W	
Connectors	4.3-10 female			
Temperature range	-40 °C ... +55 °C		-25 °C ... +65 °C	
Degree of protection (mated)	IP 65			
Weight	~ 6.2 kg		~ 3.6 kg	
Mounting brackets	Included			

* (CW) max. per input port

Distribution



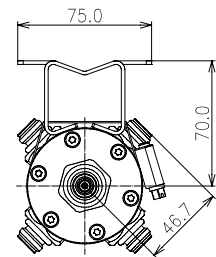
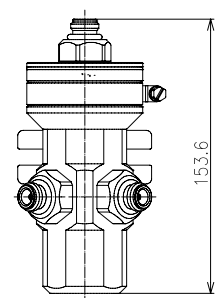
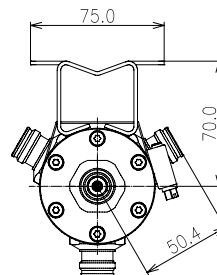
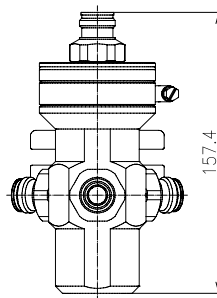
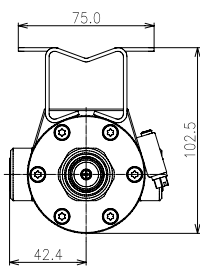
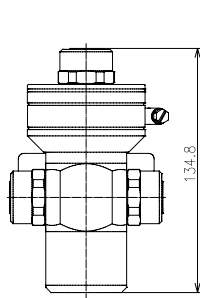
BN 818289



BN 818293



BN 923091

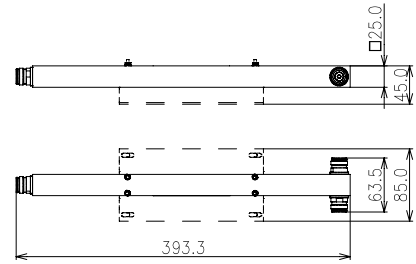


Symmetric Splitters

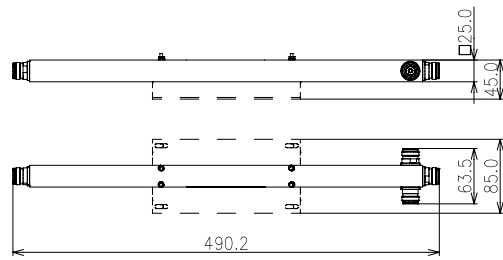
Part Number (BN)	818289	818290	818291	818292	818293	818294	923089	923090	923091
Version (outputs)	2	3	4	2	3	4	2	3	4
Frequency range	330 - 2700 MHz								
Insertion loss	≤ 3.2 dB	≤ 5.0 dB	≤ 6.5 dB	≤ 3.2 dB	≤ 5.0 dB	≤ 6.5 dB	≤ 3.2 dB	≤ 5.0 dB	≤ 6.5 dB
Passive intermodulation (IM3) @ 2 x 20 W	≤ -160 dBc								
VSWR	≤ 1.20								
Power rating	≤ 450 W						≤ 250 W		
Connectors	7-16 female			4.3 - 10 female			N female		
Temperature range	-40 °C ... +75 °C								
Degree of protection (mated)	IP68								
Weight	~ 1.1 kg		~ 1.2 kg	~ 1.1 kg		~ 1.2 kg	~ 1.1 kg		~ 1.2 kg
Mounting brackets	Included								

Distribution

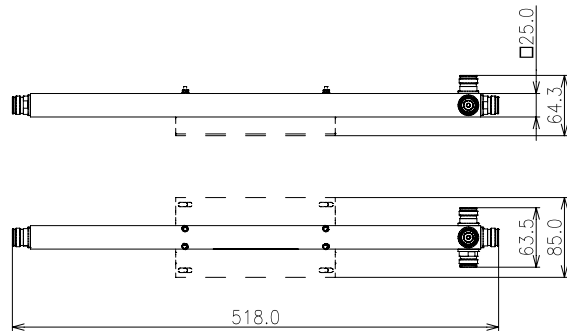
BN 818269



BN 818273



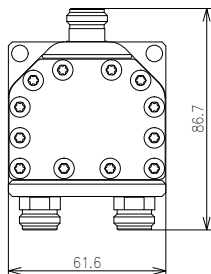
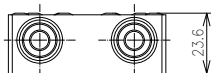
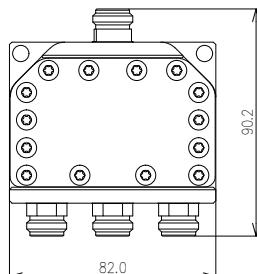
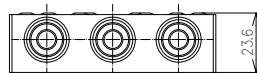
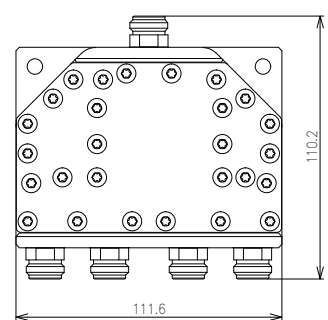
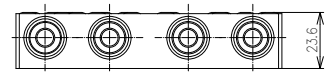
BN 818274



Symmetric Splitters

Part Number (BN)	818269	818269F001	818273	818273F001	818274	818274F001
Version (outputs)	2		3		4	
Frequency range	350 - 3800 MHz	88 - 3800 MHz	350 - 3800 MHz	88 - 3800 MHz	350 - 3800 MHz	88 - 3800 MHz
Insertion loss	≤ 3.3 dB		≤ 5.2 dB		≤ 6.6 dB	
Passive intermodulation (IM3) @ 2 x 20 W	≤ -155 dBc; typ. ≤ -160 dBc					
VSWR	≤ 1.25				≤ 1.35	
Power rating	≤ 400 W					
Connectors	4.3-10 female					
Temperature range	-30 °C ... +65 °C					
Degree of protection (mated)	IP 65					
Weight	~ 1.0 kg				~ 1.1 kg	
Mounting brackets (BN)	B30342					

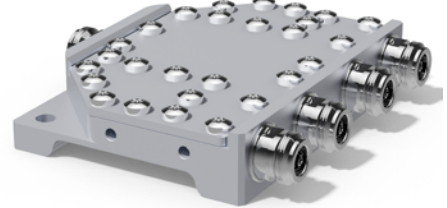
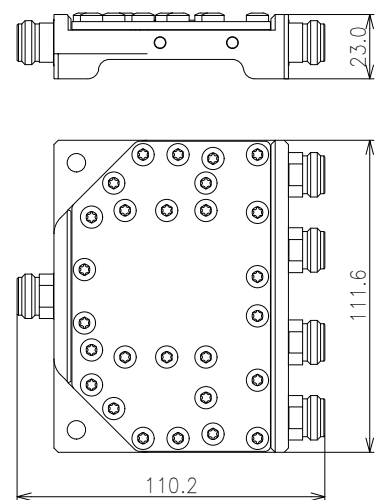
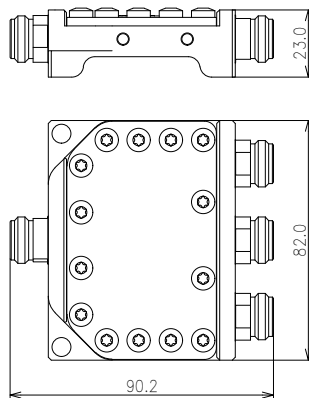
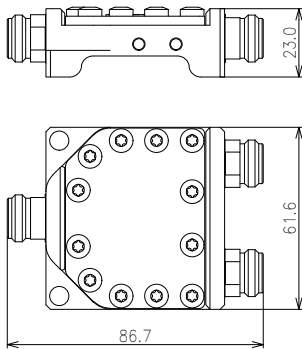
Distribution

**BN 923067F001****BN 923068F001****BN 923069F001**

Symmetric Splitters

Part Number (BN)	923067F001	923068F001	923069F001
Version (input : output)	1 : 2	1 : 3	1 : 4
Frequency range	88 - 2700 MHz		
Insertion loss (including splitting losses)	≤ 3.6 dB	≤ 6.5 dB	≤ 8.5 dB
Return loss (Port 1)	≤ -8.0 dB	≤ -5.0 dB	≤ -4.0 dB
Passive intermodulation (IM3) @ 2 x 20 W	≤ -160 dBc; typ. ≤ -165 dBc		
VSWR (Port 1)	≤ 2.0	≤ 3.0	≤ 4.0
Power rating	300 W		
Connectors	N female		
Temperature range	-25 °C ... +55 °C		
Degree of protection (mated)	IP 45 indoor		
Weight	~ 0.20 kg	~ 0.27 kg	~ 0.42 kg
Mounting brackets (BN)	B23655	B23656	B23657

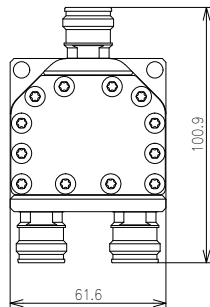
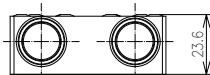
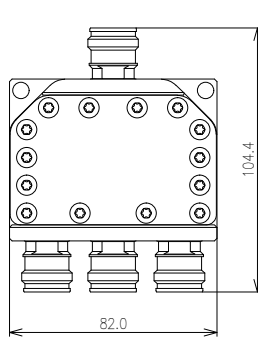
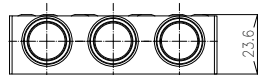
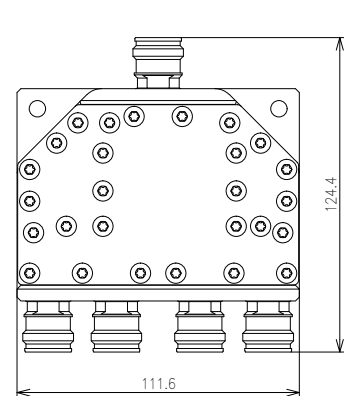
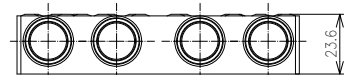
Distribution

**BN 923077F001****BN 923078F001****BN 923079F001**

Symmetric Splitters

Part Number (BN)	923077F001	923078F001	923079F001
Version (input : output)	1 : 2	1 : 3	1 : 4
Frequency range	88 - 2700 MHz		
Insertion loss (including splitting losses)	≤ 3.6 dB	≤ 6.5 dB	≤ 8.5 dB
Return loss (Port 1)	≤ -8.0 dB	≤ -5.0 dB	≤ -4.0 dB
Passive intermodulation (IM3) @ 2 x 20 W	≤ -160 dBc; typ. ≤ -165 dBc		
VSWR (Port 1)	≤ 2.0	≤ 3.0	≤ 4.0
Power rating	300 W		
Connectors	N female		
Temperature range	-25 °C ... +55 °C		
Degree of protection (mated)	IP 65 outdoor		
Weight	~ 0.20 kg	~ 0.27 kg	~ 0.42 kg
Mounting brackets (BN)	B23655	B23656	B23657

Distribution

**BN 433000F001****BN 433001F001****BN 433002F001**

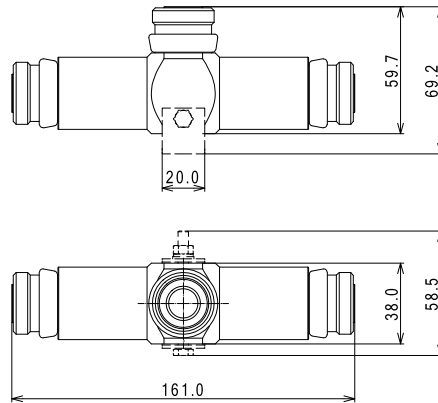
Symmetric Splitters

Part Number (BN)	433000F001	433001F001	433002F001
Version (input : output)	1 : 2	1 : 3	1 : 4
Frequency range	88 - 2700 MHz		
Insertion loss (including splitting losses)	3.1 dB $\pm$ 0.2 dB	4.8 dB $\pm$ 0.4 dB	6.1 dB $\pm$ 0.6 dB
Return loss (Port 1)	$\leq$ -17.7 dB		
Passive intermodulation (IM3) @ 2 x 20 W	$\leq$ -160 dBc; typ. $\leq$ -165 dBc		
VSWR (Port 1)	$\leq$ 1.3		
Power rating	300 W		
Connectors	4.3-10 female		
Temperature range	-25 °C ... +55 °C		
Degree of protection (mated)	IP 62 indoor		
Weight	~ 0.25 kg	~ 0.33 kg	~ 0.53 kg
Mounting brackets (BN)	B23655	B23656	B23657

Distribution



BN 818242



Asymmetric Splitters (Tappers)

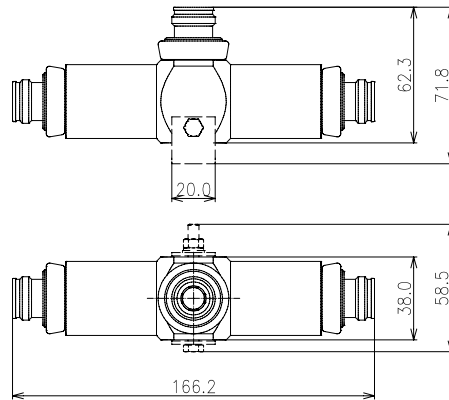
Part Number (BN)	818242	818243	818244	818245	818246	818299	818248	818249
Version (splitting ratio)								
Secondary line	1/4	1/5	1/6	1/10	1/20	1/30	1/100	1/1000
Main line	3/4	4/5	5/6	9/10	19/20	29/30	99/100	999/1000
Frequency range	170 – 1500 MHz 1710 – 2700 MHz							
Insertion loss								
Secondary line	6.0 dB	7.0 dB	8.0 dB	10.0 dB	13.0 dB	15.0 dB	20.0 dB	30.0 dB
VSWR*	≤ 1.45	≤ 1.35		≤ 1.2				
Temperature range	-40 °C ... +70 °C							
Degree of protection (mated)	IP 68							
Weight	~ 0.6 kg							
Mounting brackets (BN)	B09499							
Passive intermodulation (IM3) @ 2 x 20 W	≤ -155 dBc; typ. ≤ -160 dBc							
Power rating	≤ 500 W							
Connectors	7-16 female							

* According to DIN 14024-1

Distribution



BN 818342



Asymmetric Splitters (Tappers)

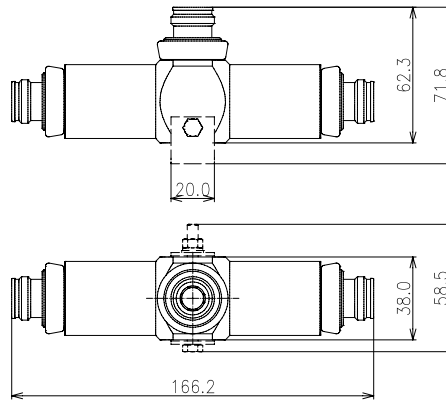
Part Number (BN)	818342	818343	818344	818345	818346	818347	818348	818349
Version (splitting ratio)								
Secondary line	1/4	1/5	1/6	1/10	1/20	1/30	1/100	1/1000
Main line	3/4	4/5	5/6	9/10	19/20	29/30	99/100	999/1000
Frequency range	170 – 1500 MHz 1710 – 2700 MHz							
Insertion loss								
Secondary line	6.0 dB	7.0 dB	8.0 dB	10.0 dB	13.0 dB	15.0 dB	20.0 dB	30.0 dB
VSWR*	≤ 1.45	≤ 1.35		≤ 1.2				
Temperature range	-40 °C ... +70 °C							
Degree of protection (mated)	IP 68							
Weight	~ 0.6 kg							
Mounting brackets (BN)	B09499							
Passive intermodulation (IM3) @ 2 x 20 W	≤ -160 dBc; typ. ≤ -165 dBc							
Power rating	≤ 500 W							
Connectors	4.3-10 female							

* According to DIN 14024-1

Distribution



BN 818342F001



Asymmetric Splitters (Tappers)

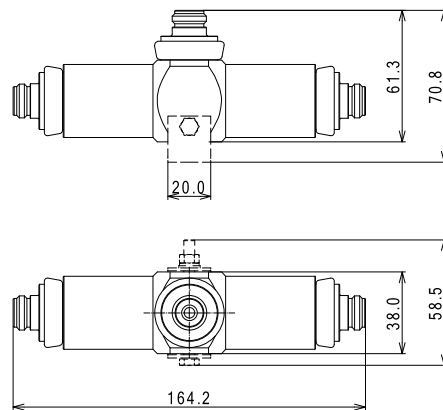
Part Number (BN)	818342F001	818343F001	818344F001	818345F001	818346F001	818347F001	818348F001	818349F001
Version (splitting ratio)								
Secondary line	1/4	1/5	1/6	1/10	1/20	1/30	1/100	1/1000
Main line	3/4	4/5	5/6	9/10	19/20	29/30	99/100	999/1000
Frequency range	88 – 1500 MHz 1710 – 2700 MHz							
Insertion loss								
Secondary line	6.0 dB	7.0 dB	8.0 dB	10.0 dB	13.0 dB	15.0 dB	20.0 dB	30.0 dB
VSWR*	≤ 1.45	≤ 1.35		≤ 1.2				
Temperature range	-40 °C ... +70 °C							
Degree of protection (mated)	IP 68							
Weight	~ 0.6 kg							
Mounting brackets (BN)	B09499							
Passive intermodulation (IM3) @ 2 x 20 W	≤ -160 dBc; typ. ≤ -165 dBc							
Power rating	≤ 500 W							
Connectors	4.3-10 female							

* According to DIN 14024-1

Distribution



BN 923042



Asymmetric Splitters (Tappers)

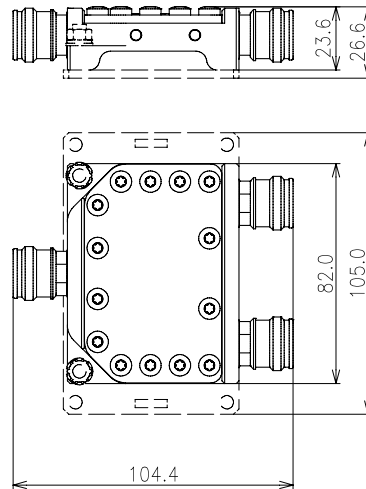
Part Number (BN)	923042	923043	923044	923045	923046	923099	923048	923049
Version (splitting ratio)								
Secondary line	1/4	1/5	1/6	1/10	1/20	1/30	1/100	1/1000
Main line	3/4	4/5	5/6	9/10	19/20	29/30	99/100	999/1000
Frequency range	170 – 1500 MHz 1710 – 2700 MHz							
Insertion loss								
Secondary line	6.0 dB	7.0 dB	8.0 dB	10.0 dB	13.0 dB	15.0 dB	20.0 dB	30.0 dB
VSWR*	≤ 1.45	≤ 1.35		≤ 1.2				
Temperature range	-40 °C ... +70 °C							
Degree of protection (mated)	IP 68							
Weight	~ 0.6 kg							
Mounting brackets (BN)	B09499							
Passive intermodulation (IM3) @ 2 x 20 W	≤ -150 dBc; typ. ≤ -155 dBc							
Power rating	≤ 250 W							
Connectors	N female							

* According to DIN 14024-1

Distribution



BN 818459



Asymmetric Splitters (Tappers)

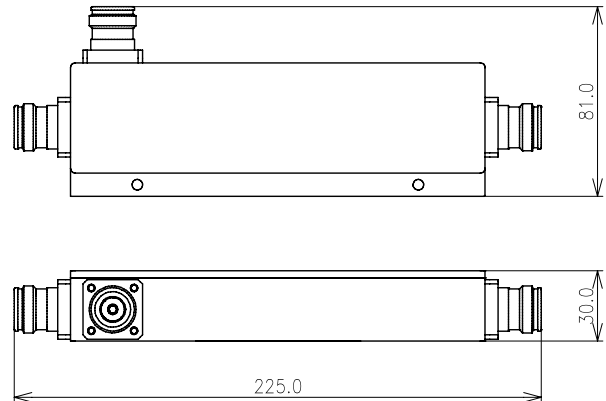
Part Number (BN)	818458	818459	818460	818461	818462	818463	818464	818465
Version (splitting ratio)								
Secondary line	1/3	1/4	1/5	1/6	1/10	1/20	1/30	1/100
Main line	2/3	3/4	4/5	5/6	9/10	19/20	29/30	99/100
Frequency range	380 – 3800 MHz							
Insertion loss								
Secondary line	4.8 dB	6 dB	7 dB	8 dB	10 dB	13 dB	15 dB	20 dB
VSWR*	≤ 1.3							
Temperature range	-40 °C ... +55 °C							
Degree of protection (mated)	IP 65							
Weight	~ 300 g							
Mounting brackets (BN)	B23656							
Passive intermodulation (IM3) @ 2 x 20 W	≤ -155 dBc; typ. ≤ -160 dBc							
Power rating	≤ 300 W							
Connectors	4.3 -10 female							

* According to DIN 14024-1

Distribution



BN 818431



Asymmetric Splitters (Tappers)

Part Number (BN)	7-16 4.3-10	818440 818431	818441 818432	818442 818433	818443 818434	818444 818435	818445 818436	818446 818437	818447 818438	818448 818439
Version (splitting ratio)										
Secondary line	1/3	1/4	1/5	1/6	1/10	1/20	1/30	1/100	1/1000	
Main line	2/3	3/4	4/5	5/6	9/10	19/20	29/30	99/100	999/1000	
Frequency range	350 – 3800 MHz									
Insertion loss										
Secondary line	4.8 dB	6 dB	7 dB	8 dB	10 dB	13 dB	15 dB	20 dB	30 dB	
Isolation	≥ 23 dB	≥ 24 dB	≥ 25 dB	≥ 26 dB	≥ 28 dB	≥ 30 dB	≥ 32 dB	≥ 35 dB	≥ 45 dB	
Passive intermodulation (IM3) @ 2 x 20 W	≤ -155 dBc; typ. ≤ -160 dBc									
VSWR*	≤ 1.3									
Temperature range	-35 °C ... +75 °C									
Degree of protection (mated)	IP 65									
Mounting brackets	Included									
Part Number (BN)	7-16	818440	818441	818442	818443	818444	818445	818446	818447	818448
Power rating	≤ 500 W									
Connectors	7-16 female									
Weight	~ 880 g									
Part Number (BN)	4.3-10	818431	818432	818433	818434	818435	818436	818437	818438	818439
Power rating	≤ 400 W									
Connectors	4.3 -10 female									
Weight	~ 680 g									

* According to DIN 14024-1

Distribution



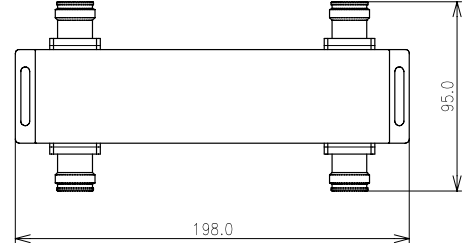
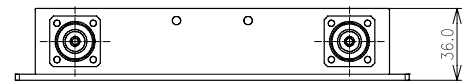
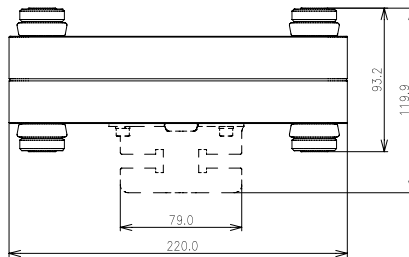
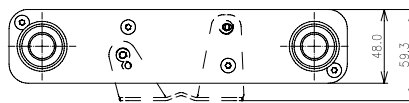
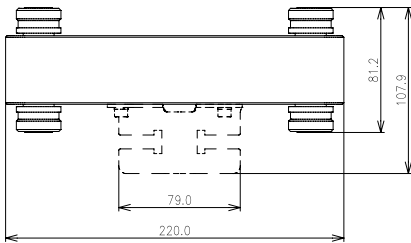
BN 753381 / BN 753382 / BN 753383



BN 753386



BN 753359



Directional Couplers

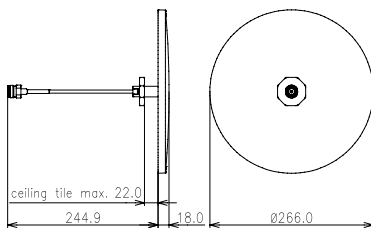
Part Number (BN)	753381	753382	753383	753386	753393	753393F001	753359			
Version	H-style				X-style					
Frequency range	330 - 520 MHz				380 - 3800 MHz	88 - 3800 MHz	350 - 2700 MHz			
Coupling attenuation	3.0 dB	6.0 dB	10.0 dB	20.0 dB	3.0 dB					
Isolation	≥ 36 dB		≥ 40 dB	≥ 50 dB	≥ 30 dB; typ. ≥ 35 dB		≥ 23 dB; typ. ≥ 25 dB			
Passive intermodulation (IM3) @ 2 x 20 W	≤ 160 dBc				≤ 160 dBc		≤ -155 dBc			
VSWR	≤ 1.06				≤ 1.20		≤ 1.25			
Power rating*	≤ 1000 W				≤ 500 W		≤ 300 W			
Connectors	7-16 female				4.3-10 female					
Temperature range	-40 °C ... +70 °C				-40 °C ... +80°C					
Degree of protection (mated)	IP 68				IP 65					
Weight	~ 1.4 kg				~ 2.1 kg		~ 0.8 kg			
Mounting brackets (BN)	B13702						Included			

* (CW) max. per input port

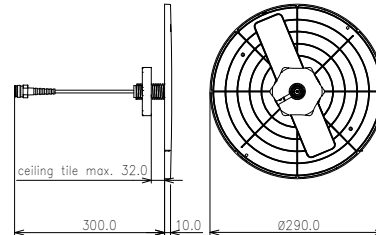
Antennas



BN A77137C0001



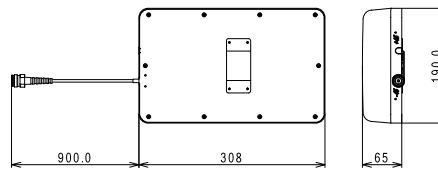
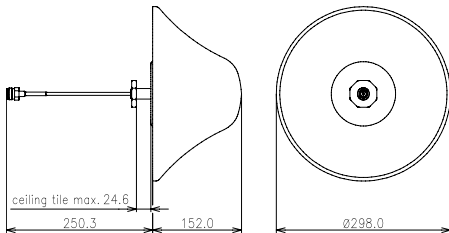
BN A77684



Antennas

Part Number (BN)	A77137C0001	A77684
Type	Omni thin for ceiling mount	
Polarization	Horizontal	
Beamwidth	360 °	
Frequency range	380 - 2700 MHz	350 - 6000 MHz
Ports	1	
Gain	≥ 2.0 dBi ... ≥ 4.5 dBi	≥ 3.0 dBi ... ≥ 5.0 dBi
Passive intermodulation (IM3) @ 2 x 20 W	≤ -150 dBc	≤ -150 dBc
VSWR	≤ 2.5 @ 380 - 520 MHz ≤ 2.0 @ 694 - 2700 MHz	≤ 2.0 @ 350 - 960 MHz ≤ 1.8 @ 1350 - 6000 MHz
Power rating	50 W	
Connector(s)	4.3-10 female	
Temperature range	-55 °C ... +60 °C	
Material and color	ABS, white, RAL9003	
Degree of protection	IP 54	
Weight	~ 0.4 kg	~ 0.5 kg
Mounting material	Included	
Absorber (BN)	A77698	On request
Fire load	3.48 kWh	3.69 kW

Antennas

**BN A77144****BN A77149C0002**

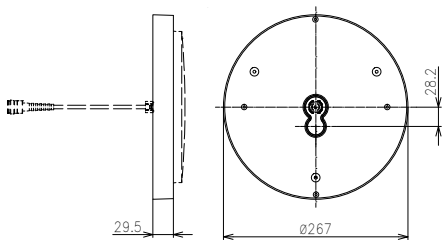
Antennas

Part Number (BN)	A77144	A77149C0002
Type	Omni for ceiling mount	Panel for wall mount
Polarization	Vertical	
Beamwidth	90 ° @ 380 - 520 MHz 90 ° @ 698 - 960 MHz 35 ° @ 169 - 6000 MHz	150 ° @ 380 - 470 MHz 90 ° @ 698 - 960 MHz 75 ° @ 1710 - 2700 MHz 55 ° @ 3400 - 4000 MHz
Frequency range	380 - 6000 MHz	380 - 4000 MHz
Ports	1	
Gain	≥ 2.0 dBi ... ≥ 4.0 dBi	≥ 4.0 dBi ... ≥ 7.5 dBi
Passive intermodulation (IM3) @ 2 x 20 W	≤ -153 dBc	≤ -150 dBc
VSWR	≤ 3.0 @ 380 - 520 MHz ≤ 2.0 @ 694 - 6000 MHz	≤ 2.5 @ 380 - 520 MHz ≤ 2.0 @ 698 - 6000 MHz
Power rating	50 W	
Connector(s)	4.3-10 female	
Temperature range	-55 to +60 °C	
Material and color	ABS / white (RAL 9003)	
Degree of protection	IP 54	
Weight	~ 0.9 kg	~ 0.6 kg
Mounting material	Included	
Fire load	5.51 kWh	3.29 kWh

Antennas



BN A77698



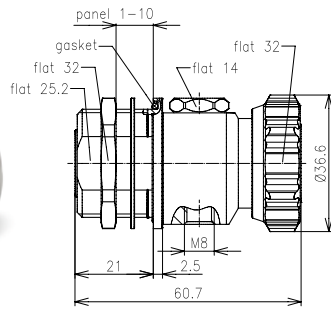
Absorber for 220 mm and 266 mm antennas

Part Number (BN)		A77698
Material	Top cover Bottom cover Absorber	ABS, white RAL9003 PVC, white RAL9003 Carbon dust
Dimensions		Ø 267 x 29.5 mm
Weight		430 g
Degree of protection		Indoor / IP54
RoHS		Compliant
Fire load		4.30 kWh

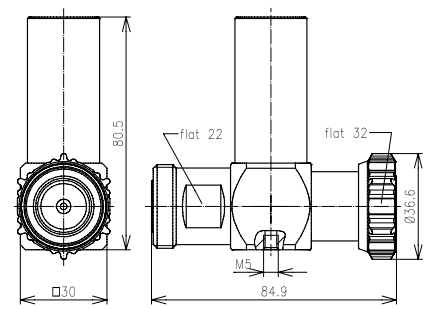
Protection



BN 194284



BN 766419



Surge Protectors

Part Number (BN)	194284	920480	950880	950888	766419
Version	Gas discharge arrestors (Housing only, gas discharge arrestors see table below)				Quarter wave-length stub
Frequency range	0 - 2500 MHz				380 - 512 MHz
Insertion loss	≤ 0.1 dB				
Surge current (8/20 µs)	N/A				≤ 50 kA
Test pulse	N/A				4 kV (1.2/50 µs) and 2 kA (8/20 µs)
Residual energy at test pulse	N/A				≤ 20 µJ
Power rating	Dependent on gas discharge arrestor BN A71307: ≤ 20 W @ 90 V BN A71308: ≤ 180 W @ 230 V BN A71311: ≤ 1.2 kW @ 600 V BN A71313: ≤ 3 kW @ 1 kV				≤ 3 kW
VSWR	≤ 1.06 @ 0 - 1000 MHz ≤ 1.20 @ 1000 - 2500 MHz				≤ 1.22
Connectors	7-16 male / 7-16 female bulkhead	7-16 female / 7-16 female bulkhead	N male / N female bulkhead	N female / N female bulkhead	7-16 male 7-16 female
Temperature range	-40 °C ... +85 °C				-45 °C ... +75 °C
Degree of protection (mated)	IP 67				
Weight	~ 270 g	~ 280 g	~ 160 g	~ 130 g	~ 430 g
Grounding cable	BN A71367				

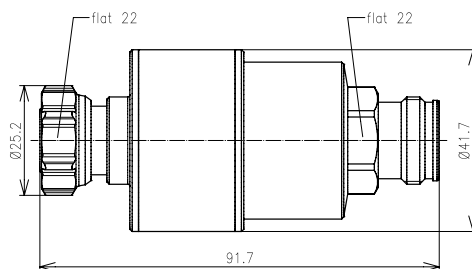
Gas Discharge Arrestors

Part Number	BN A71307	BN A71308	BN A71311	BN A71313
Stat. sparkover voltage (100 V/s)	90 V ± 20 V	230 V ± 35 V	600 +120 V / -90 V	1000 V ± 200 V
Power rating	≤ 20 W	≤ 180 W	≤ 1200 W	≤ 3000 W
Dyn. sparkover voltage (1 kV/µs)	≤ 700 V	≤ 750 V	≤ 1200 V	≤ 1600 V
Surge current	≤ 25 kA			
Single (8/20 µs)				
multiple (8/20 µs) 5 pulses in 3 min.	≤ 20 kA	≤ 10 kA	≤ 10 kA	≤ 5 kA
Arc (residual) voltage	≤ 25 V			≤ 30 V

Protection



BN 432054



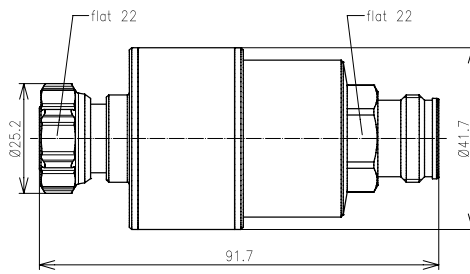
DC Breaks

Part Number (BN)	766436	766438	432054	432067	950720	950721
Version	Inner and outer conductor separated	Inner conductor separated	Inner and outer conductor separated	Inner conductor separated	Inner and outer conductor separated	Inner conductor separated
Frequency range	80 - 3800 MHz					
Insertion loss	≤ 0.25 dB; typ. ≤ 0.10 dB					
Passive intermodulation (IM3) @ 2 x 20 W	≤ -160 dBc; typ. ≤ -165 dBc				≤ -155 dBc; typ. ≤ -160 dBc	
VSWR	≤ 1.40; typ. ≤ 1.28 @ 80 – 100 MHz ≤ 1.30; typ. ≤ 1.22 @ 100 – 300 MHz ≤ 1.10; typ. ≤ 1.06 @ 300 – 1880 MHz ≤ 1.20; typ. ≤ 1.11 @ 1880 – 2700 MHz ≤ 1.25; typ. ≤ 1.19 @ 2700 – 3800 MHz					
Power rating	1500 W @ 80 MHz 300 W @ 1880 MHz 250 W @ 2700 MHz 130 W @ 3800 MHz					
Temperature range	-40 °C ... +55 °C					
Degree of protection (mated)	IP 67					
Connectors	7-16 male / 7-16 female		4.3-10 male screw type / 4.3-10 female		N male / N female	
Weight	~ 0.3 kg					
Blocking DC voltage	3000 V					

Protection



BN 432054



DC Breaks

Part Number (BN)	766436F001	766438F001	432054F001	432067F001	950720F001	950721F001
Version	Inner and outer conductor separated	Inner conductor separated	Inner and outer conductor separated	Inner conductor separated	Inner and outer conductor separated	Inner conductor separated
Frequency range	33 - 4000 MHz 5100 - 6000 MHz					
Insertion loss	≤ 0.25 dB; typ. ≤ 0.10 dB					
Passive intermodulation (IM3) @ 2 x 20 W	≤ -160 dBc; typ. ≤ -165 dBc				≤ -155 dBc; typ. ≤ -160 dBc	
VSWR	≤ 1.40; typ. ≤ 1.28 @ 80 – 100 MHz ≤ 1.30; typ. ≤ 1.22 @ 100 – 300 MHz ≤ 1.10; typ. ≤ 1.06 @ 300 – 1880 MHz ≤ 1.20; typ. ≤ 1.11 @ 1880 – 2700 MHz ≤ 1.25; typ. ≤ 1.19 @ 2700 – 3800 MHz					
Power rating	1500 W @ 80 MHz 300 W @ 1880 MHz 250 W @ 2700 MHz 130 W @ 3800 MHz					
Temperature range	-40 °C ... +55 °C					
Degree of protection (mated)	IP 67					
Connectors	7-16 male / 7-16 female		4.3-10 male screw type / 4.3-10 female		N male / N female	
Weight	~ 0.3 kg					
Blocking DC voltage	3000 V					

Connectors for Radiating Cables

**BN 557150****BN 557152****BN 557173**

Connectors

Part Number (BN)		557110	557111	557150	557151	557152	557153	557161	557163	557173
Cable size		RM 1/2"		RM 7/8"				RM 1 1/4"		RM 1 5/8"
Connector type and style		N male	N female	N male	N female	7-16 male	7-16 female	N female	7-16 female	7-16 female
VSWR, max.	DC to 0.5 GHz	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
	0.5 to 1.0 GHz	1.06	1.04	1.04	1.04	1.04	1.04	1.06	1.06	1.06
	1.0 to 2.0 GHz	1.08	1.06	1.06	1.06	1.06	1.06	1.08	1.08	1.08
	2.0 to 3.0 GHz	1.11	1.08	1.08	1.08	1.08	1.08	1.11	1.11	1.11
	3.0 to 3.8 GHz	–	1.08	1.08	1.08	1.08	1.08	–	–	–
Degree of protection (mated)		IP 68								
Weight		160 g		270 g		300 g		400 g		630 g

Radiating Cables



BN A73143

SpinnerFlex® RM7/8"-50-FR

Part Number (BN)	A73143					
Inner conductor diameter	9.3 mm	Copper tube				
Outer conductor diameter	23.5 mm	Overlapping copper foil				
Diameter over jacket	27.0 mm	PE black				
Nominal impedance	50 Ohms					
Propagation velocity	88 %					
Capacitance	76 pF/m					
DC breakdown voltage	10 kV					
Insulation resistance	> 5 x 10 ³ MΩ *km					
VSWR (selected frequency ranges)	≤ 1.3					
Frequency	75 MHz	150 MHz	350 MHz	450 MHz	800 MHz	900 MHz
Nom. attenuation dB/100 m	1.05	1.60	2.77	2.90	4.48	5.06
Coupling loss (50% / 95%)	51 / 64 dB	58 / 64 dB	53 / 60 dB	53 / 60 dB	59 / 64 dB	58 / 64 dB
Minimum bending radius (single)	300 mm					
Max. tensile force	1300 N					
Recommended clamp spacing	1000 mm					
Weight	0.45 kg/m					
Recommended temperature range	Storage: -30 °C to +80 °C Installation: -25 °C to +60 °C Operation: -30 °C to +80 °C					
CPR class	Dca					
Halogen-free	IEC 60754-1, IEC 60754-2					

Cable Monitoring System

NEW

BN 43366A

- VSWR monitoring and distance to fault determination
- Active monitoring signal analyzed with VNA
- Short and open circuit detection
- Monitoring signal coupled in between TETRA and GSM-R via diplexer
- Works independently from TETRA / GSM-R signal
- Results via web interface - TCP/IP
Several units to be combined in one interface

Wall mount unit with diplexer

Part Number (BN)	43366A
Frequency range	600 - 700 MHz (customizable within 30 - 4400 MHz)
Pass band BTS port – cable port	140 - 450 MHz & 850 - 960 MHz (customizable to other systems)
Pass band VNA port – cable port	600 - 700 MHz (customizable to other systems)
Insertion loss, max.	1.0 dB
VSWR, max.	1.25
Out of band rejection, min.	50 dB
Isolation, min.	50 dB
Impedance	50 Ohm
Output power	-30 dBm to -5 dBm (@ diplexer output)
PIM	< -155 dBc @ 400 MHz, 900 MHz
Connectors	4.3 -10 female
Communication interface	2 x RJ-45 (LAN1, LAN2), 10/100 Mbit/s, LAN2 fixed to IP-address 192.168.1.11
Power rating BTS port, max.	50 W (CW)
Power consumption, max.	7 W (3 W in standby)
Mains adaptor voltage	80 to 264 VAC, 47 to 63 Hz
IP protection level	IP 40 per EN 60529
Distance to fault resolution	1.5 m (depends on cable velocity; 1.2 m @ 80% velocity)
Maximum DTF distance	2000 m (cable loss less than 2.5 dB/100 m)
Dimensions (W x H x L)	291 x 188 x 332 mm (incl. pole mount)
Weight	12.7 kg (incl. 2 x diplexer)



HIGH FREQUENCY PERFORMANCE WORLDWIDE

SPINNER designs and builds cutting-edge radio frequency systems, setting performance and longevity standards for others to follow. The company's track record of innovation dates back to 1946, and many of today's mainstream products are rooted in SPINNER inventions.

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