

## FM Double Cavity Filters

M1F4N

M1F4Q

M1F4R

The M1F4 are high quality filters with one-quarter wavelength coaxial cavities, especially designed for heavy duty service in the 87,5 ÷ 108 MHz band. They are band pass double cavities to be installed between the transmitter and the antenna, to drastically reduce spurious signals and any other intermodulation product.

The M1F4 are double filters with rotating loops allowing easy tuning of the circuit for a different sideband attenuation and with a variable coupling. To enhance the dissipation of even high temperatures, a heat sink has been installed on the rear panel. The filters are provided in a 19" standard rack.



CODE	MODEL	DESCRIPTION
F894.01	M1F4N	3U 250W Band Pass filter with directional coupler, In/Out N
F894.02	M1F4R	3U 500 W Band Pass filter with directional coupler, In/Out 7/16
AVAILABLE OPTIONS	Different Input and Output connector	

### Technical data

SPECIFICATIONS	M1F4N	M1F4R
Rf output power	250	500
Input Connector	N	N
Output Connector	N	7/16
Weight	4	5
Minimum Frequency Spacing	2,0 MHz 1,4 MHz 0,7 MHz	2,0 MHz 1,4 MHz 0,7 MHz
Typical Insertion loss	< 0,65 dBd < 0,9 dBd < 1,4 dBd	< 0,65 dBd < 0,9 dBd < 1,4 dBd
Frequency Range	87,5 ÷ 108 MHz	87,5 ÷ 108 MHz
Input Impedance	50 Ohm	50 Ohm
VSWR	≤ 1.15:1	≤ 1.15:1
Internal parts	Silver-plated brass and PTFE	Silver-plated brass and PTFE
External parts	Aluminium	Aluminium
Colour	Grey	Grey
Temperature operating range	From -10°C to +50°C	From -10°C to +50°C

## FM Double & Triple Cavity Filters

DCF 500

DCF 2000

DCF 5000

TCF 3000

These high quality Cavity Filters are one-quarter wavelength coaxial cavities designed for the 87,5 ÷ 108 MHz band. They are band pass double cavities to be installed between the transmitter and the antenna, to drastically reduce spurious signals and any other intermodulation product.

The DCF is a double filter and the TCF is a triple filter, all of them with rotating loops allowing easy tuning of the circuit for a different sideband attenuation and with a variable coupling.

CODE	MODEL	DESCRIPTION
F210	DCF 500	Double cavity filter, 800 W Power rate per channel IN/OUT N
F211	DCF 2000	Double cavity filter, 2 KW Power rate per channel IN/OUT 7/16"
F212	DCF 5000	Double cavity filter, 5 KW Power rate per channel IN/OUT 7/8"
F679	TCF 3000	Triple cavity filter, 3000 W Power rate per channel IN/OUT 7/8"
AVAILABLE OPTIONS	Different Input and Output connector	



### Technical data

SPECIFICATIONS	DCF 500	DCF 2000	DCF 5000	TCF 3000
Rf output power	800	2000	5000	3000
Input Connector	N	7/16	7/8	7/8
Output Connector	N	7/16	7/8	7/8
Weight	10 Kg	18 Kg	37 Kg	25 Kg
Minimum Frequency Spacing	2,2 MHz	2,2 MHz	2,2 MHz	2,2 MHz
Typical Insertion loss	< 0,4 dBd	< 0,3 dBd	< 0,2 dBd	from 0,3 to 0,8 dBd
Frequency Range	87,5 ÷ 108 MHz	87,5 ÷ 108 MHz	87,5 ÷ 108 MHz	87,5 ÷ 108 MHz
Input Impedance	50 Ohm	50 Ohm	50 Ohm	50 Ohm
VSWR	≤ 1.15:1	≤ 1.15:1	≤ 1.15:1	≤ 1.15:1
Internal parts	Silver-plated brass and PTFE	Silver-plated brass and PTFE	Silver-plated brass and PTFE	Silver-plated brass and PTFE
External parts	Aluminium	Aluminium	Aluminium	Aluminium
Colour	Black	Black	Black	Black
Temperature operating range	From -10°C to +50°C	From -10°C to +50°C	From -10°C to +50°C	From -10°C to +50°C

## FM Double Bridge Combiners & FM Star Point Combiners in rack Slide

M2F4N

M3F4N

M4F4N

M2F4N/P

M3F4N/P

M4F4N/P

The “Starpoint” combining filters are carefully calibrated at our laboratories onto any frequency figures required by the customer. Even with 100% modulation, they assure an effective separation for adjacent frequencies up to 1,3 MHz. The multi-program models are designed in one modular mechanical structure which can house up to four identical band pass Coaxial Cavity filters, type M1F4. In these configurations, the output power figures of the filters are combined through rigid lines which are part of the unit and can be adjusted at 2, 3, 4, 5, 6, 7, 8 Narrow band inputs by means of easy operations.

The “Double Bridge” combining filters allow easy changes to new figures of the operating frequencies. With 100% modulation, they can satisfactorily separate two adjacent frequencies up to 0,6 MHz distance. The multi-program models are designed in one modular mechanical structure which can house up to two identical band pass filters, type M1F4 in Double Bridge Configuration.

They are composed by two different Double Cavity Filters and two Hybrid Couplers, including a Narrow Band and Wide Band input lines



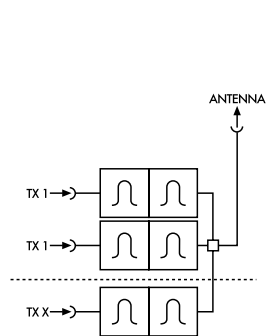
On request, up to eight different transmitters can be combined to a common transmission antenna with the same technology.

To deliver two reflected and direct monitories at a preset level of -50 dB, a directional coupler is assembled at the output of the combiner.

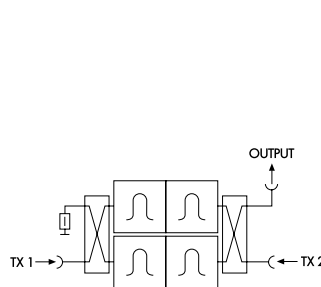
CODE	MODEL	DESCRIPTION
100252	M5F4R	500 W/ch Pentaplexer Starpoint Combiner heads., Out 7/8
100226	M5F4N	100 W/ch Pentaplexer Starpoint Combiner, Out 7/16
100227	M4F4R	500 W/ch Quadriplexer Starpoint Combiner heads. Out 7/8
100229	M2F4R	500 W/ch Diplexer Starpoint Combiner heads., Out 7/16
100241	M6F4R/P	500 W/ch Esaplexer Bridge Combiner heads., Out 7/8
100225	M5F4R-P	500 W/ch Pentaplexer Bridge Combiner heads., Out 7/8
100251	M4F4R/P	500 W/ch Quadriplexer Bridge Combiner heads., Out 7/8
AVAILABLE OPTIONS	Different Input and Output connector	

## Technical data

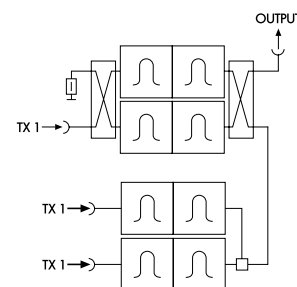
Frequency Range	87,5 ÷ 108 MHz	External parts	Aluminium
Input Impedance	50 Ohm	Colour	Black
VSWR	≤ 1.2:1	Temperature operating range	From -10°C to +50°C
Decoupling between Input port	28 dB	Dimensions (W x H X D) mm	482 x 310 (7 Unit) x 578 up to 4 Channel 482 x 620 (14 Unit) x 578 from 5 to 8 Channel
Internal parts	Silver-plated brass and PTFE		



Block diagram starpoint



Block diagram diplexer bridge



Block diagram mix



SPECIFICATIONS	M2F4N	M4F4N	M2F4Q	M4F4Q	M2F4R	M4F4R
Rf output power	100	100	300	300	500	500
Input Connector	N	N	N	N	N	N
Output Connector	N	N	N	7/16	7/16	7/8
Weight	18 Kg	25 Kg	19 Kg	26 Kg	20 Kg	27 Kg
Minimum Frequency Spacing	2,0 MHz	2,0 MHz	1,4 MHz	1,4 MHz	0,7 MHz	0,7 MHz
Typical Insertion loss	< 0,65 dBd	< 0,65 dBd	< 0,9 dBd	< 0,9 dBd	< 1,4 dBd	< 1,4 dBd
Minimum Frequency Spacing	4,0 MHz	3,0 MHz	2,0 MHz	1,6 MHz	1,3 MHz	0,6 MHz
Max operating Power	500	500	500	350	200	not available



SPECIFICATIONS	M2F4N/P	M4F4N/P	M2F4Q/P	M4F4Q/P	M2F4R/P	M4F4R/P
Rf output power	100	100	300	300	500	500
Input Connector	N	N	N	N	N	N
Output Connector	N	N	N	7/16	7/16	7/8
Weight	20 Kg	27 Kg	21 Kg	28 Kg	22 Kg	30 Kg
Minimum Frequency Spacing	2,0 MHz	2,0 MHz	1,4 MHz	1,4 MHz	0,7 MHz	0,7 MHz
Typical Insertion loss	< 0,65 dBd	< 0,65 dBd	< 0,9 dBd	< 0,9 dBd	< 1,4 dBd	< 1,4 dBd
Minimum Frequency Spacing	4,0 MHz	3,0 MHz	2,0 MHz	1,6 MHz	1,3 MHz	0,6 MHz
Max operating Power	1000	1000	700	500	400	300

## FM Double Bridge Combiners

DPX 1000  
TLX 500

DPX 2000  
TLX 2000

DPX 5000  
TLX 5000

The “Double Bridge” combining filters allow easy changes to new figures of the operating frequencies. With 100% modulation, they can satisfactory separate two adjacent frequencies up to 2 MHz. They are composed of two different double cavity filters and

two hybrid couplers, including a narrow band and wide band input lines. Combining systems for special purposes are available on request.

CODE	MODEL	DESCRIPTION
F247	DPX 1000	Diplexer 800 W Power rate per channel, IN N, OUT 7/16”
F248	DPX 2000	Diplexer 2 KW Power rate per channel, IN 7/16”, OUT 7/8”
F248.01	DPX 2000	Diplexer 2 KW Power rate per channel, IN 7/8”, OUT 1-5/8”
F249	DPX 5000	Diplexer 4 KW Power rate per channel, IN 7/8”, OUT 1-5/8”
F252	TLX 500	Triplexer 800 W power rate per channel, IN N, OUT 7/8”
F253	TLX 2000	Triplexer 2 KW power rate per channel, IN 7/16”, OUT 1-5/8”
F254	TLX 5000	Triplexer 4 KW power rate per channel, IN 1-5/8”, OUT 3-1/8”
AVAILABLE OPTIONS	Different Input and Output connector - Triple cavity	



SPECIFICATIONS	DPX 1000	TLX 1000	DPX 2000	TLX 2000	DPX 5000	TLX 5000
Rf output power	800	800	2000	2000	4000	5000
Input Connector	N	N	7/16	7/16	7/8	1-5/8
Output Connector	7/16	7/8	7/8	1-5/8	1-5/8	3-1/8
Weight	28 Kg	56 Kg	58 Kg	122 Kg	107 Kg	230 Kg
Minimum Frequency Spacing	2,2 MHz	2,2 MHz	2,2 MHz	2,2 MHz	2,2 MHz	2,2 MHz
Typical Insertion loss	< 0,6 dBd	< 0,6 dBd	< 0,5 dBd	< 0,4 dBd	< 0,5 dBd	< 0,4 dBd
Isolation Between Channels	> 30 dB	> 30 dB	> 35 dB	> 35 dB	> 35 dB	> 35 dB
Frequency Range	87,5 ÷ 108 MHz					
Input Impedance	50 Ohm					
VSWR	≤ 1.2:1					
Internal parts	Silver-plated brass and PTFE					
External parts	Aluminium					
Colour	Black					
Temperature operating range	From -10°C to +50°C					

## FM Starpoint Combiners

DSX 1000  
TTX 500

DSX 2000  
TTX 2000

DSX 5000  
TTX 5000

The “Starpoint” combining filters are carefully calibrated at our laboratories onto the frequency figures required by the customer. Even at 100% modulation, they assure an effective separation for adjacent frequencies up to 2 MHz. They are composed

of two or more coaxial cavity filters connected to rigid lines, each of them equipped with narrow band input lines. Combining systems for special purposes are available on request.

CODE	MODEL	DESCRIPTION
F255	DSX 1000	Diplexer 800 W power rate per channel, IN N, OUT 7/16”
F256	DSX 2000	Diplexer 2 KW power rate per channel, IN 7/16”, OUT 7/8”
F257	DSX 5000	Diplexer 4 KW power rate per channel, IN 7/8” , OUT 1-5/8”
F271	TTX 500	Triplexer 800 W power rate per channel, IN N, OUT 7/8”
F272	TTX 2000	Triplexer 2 KW power rate per channel, IN 7/16”, OUT 1-5/8”
F273	TTX 5000	Triplexer 4 KW power rate per channel, IN 1-5/8” , OUT 3-1/8”
F625	QPX 500	Quadriplexer 500 W power rate per channel, IN N, OUT 7/8”
F625.01	QPX 250	Quadriplexer 250 W power rate per channel, IN N, OUT 7/16”
F625.02	QPX 100	Quadriplexer 100 W power rate per channel, IN/OUT N
F626	QPX 1000	Quadriplexer 1 KW power rate per channel, IN 7/16”, OUT 1-5/8”
AVAILABLE OPTIONS	Different Input and Output connector - Triple cavity	



SPECIFICATIONS	DSX 1000	TTX 500	QPX 1000	DSX 2000	TTX 2000	QPX 250	DSX 5000	TTX 5000	QPX 500	QPX 1000
Rf output power	800	800	100	2000	2000	250	5000	5000	500	1000
Input Connector	N	N	N	7/16	7/16	N	7/8	1-5/8	N	7/16
Output Connector	7/16	7/8	N	7/8	1-5/8	7/16	1-5/8	3-1/8	7/8	1-5/8
Weight	23 Kg	40 Kg	45 Kg	42 Kg	60 Kg	46 Kg	80 Kg	120 Kg	47 Kg	80 Kg
Minimum Frequency Spacing	2,2 MHz	2,2 MHz	2,2 MHz	2,2 MHz	2,2 MHz	2,2 MHz	2,2 MHz	2,2 MHz	2,2 MHz	2,2 MHz
Typical Insertion loss	< 0,6 dBd	< 0,6 dBd	< 0,5 dBd	< 0,5 dBd	< 0,4 dBd	< 0,4 dBd	< 0,4 dBd	< 0,4 dBd	< 0,4 dBd	< 0,4 dBd
Isolation Between Channels	> 30 dB	> 30 dB	> 35 dB	> 40 dB	> 40 dB	> 40 dB	> 40 dB	> 40 dB	> 40 dB	> 40 dB
Frequency Range	87,5 ÷ 108 MHz									
Input Impedance	50 Ohm									
VSWR	≤ 1.2:1									
Internal parts	Silver-plated brass and PTFE									
External parts	Aluminium									
Colour	Black									
Temperature operating range	From -10°C to +50°C									