



# TMC

family of  
fully solid state

## ANTENNA MULTICOUPLERS

in the  
AMC/LMC series

- SOLID STATE
- WIDE DYNAMIC RANGE
- BROAD FREQUENCY COVERAGE  
(10KHz to 32MHz)
- ECONOMICAL FULL OR HALF STANDARD  
RACK MOUNTING
- MINIMUM NOISE LEVEL
- COUPLING UP TO 32 RECEIVERS
- MINIMUM DETERIORATION BY CASCADING



## SOLID STATE 2 – 32 MHz

AMC 23



AMC 8  
AMC 22

TMC Models AMC-8, AMC-22 and AMC-23 Receiving Antenna Multicouplers are broadband devices that couple 8 high frequency communication receivers to a single antenna input in the frequency range 2 - 32 MHz.

LMC 32

## SOLID STATE 10 KHz – 2 MHz



LMC 8

TMC Models LMC-8, LMC-32 Receiving Antenna Multicouplers are broadband devices that couple 8 or 32 low frequency communication receivers to a single antenna input in the frequency range 10KHz - 2MHz.

AMC 21B  
(CU-5074/U)

## SOLID STATE 2 – 32 MHz



AMC 32

TMC model AMC-21B Receiving Antenna Multicoupler is a versatile broadband device that can couple from 4 to 16 receivers by plug-in modules to a single antenna in the frequency range 2 to 32 MHz.

TMC model AMC-32 Receiving Antenna Multicoupler is a broadband device that couples 32 receivers to a single antenna in the frequency range 2 to 32 MHz.

## AMC/LMC SERIES

## Major Characteristics

## ELECTRICAL

Basic Model	No. of Output	* Frequency Range w/o Filters	Nominal Gain	Noise Figure Less Than	Minimum Isolation		Desensitization of 3 db @	** Intermodulation		VSWR max.	
					Output to Input db	Output to Output db		2nd Order Distortion Products	3rd Order Distortion Products	Input	Output
AMC-8	8	100 KHz-60 MHz	2 db	7 db	>55	>40	4V Peak	65	70	1.5	1.2
AMC-21	4, 8 or 16	100 KHz-60 MHz	2 db	7 db	>55	>40	4V Peak	65	70	1.8	1.2
AMC-22	8	100 KHz-60 MHz	2 db	7 db	>55	>40	4V Peak	65	70	1.8	1.2
AMC-23	8	100 KHz-60 MHz	2 db	7 db	>55	>40	4V Peak	65	70	1.8	1.2
AMC-32	32	100 KHz-60 MHz	2 db	7 db	>55	>40	4V Peak	60	65	1.5	1.2
LMC-8	8	10 KHz- 6 MHz	2 db	7 db	>55	>40	3.5V Peak	65	70	1.5	1.2
LMC-32	32	10 KHz- 6 MHz	2 db	7 db	>55	>40	3.5V Peak	65	70	1.5	1.2

## INSTALLATION AND ENVIRONMENTAL

Basic Model	MTBF hours	Power Source		Power Consumption Watts	Weight lbs.	Dimensions		
		Volts ac	Freq. Hz			W	H	D
AMC-8	20K	115/230	48-400	25	8 (3.75 Kg)	19" (48.25 cm)	1-3/4" (4.44 cm)	14" (35.56 cm)
AMC-21	20K	115/230	48-400	25	25 (11.5 Kg)	19" (48.25 cm)	3-1/2" (8.89 cm)	14" (35.56 cm)
AMC-22	20K	115/230	48-400	25	8 (3.75 Kg)	19" (48.25 cm)	1-3/4" (4.44 cm)	14" (35.56 cm)
AMC-23	20K	115/230	48-400	25	7 (3.2 Kg)	8-5/8" (21.90 cm)	3-1/2" (8.89 cm)	14" (35.56 cm)
AMC-32	20K	115/230	48-400	85	17 (8.10 Kg)	19" (48.25 cm)	3-1/2" (8.89 cm)	15-1/2" (39.37 cm)
LMC-8	20K	115/230	48-400	25	8 (3.75 Kg)	19" (48.25 cm)	1-3/4" (4.44 cm)	14" (35.56 cm)
LMC-32	20K	115/230	48-400	85	17 (8.10 Kg)	19" (48.25 cm)	3-1/2" (8.89 cm)	15-1/2" (39.37 cm)

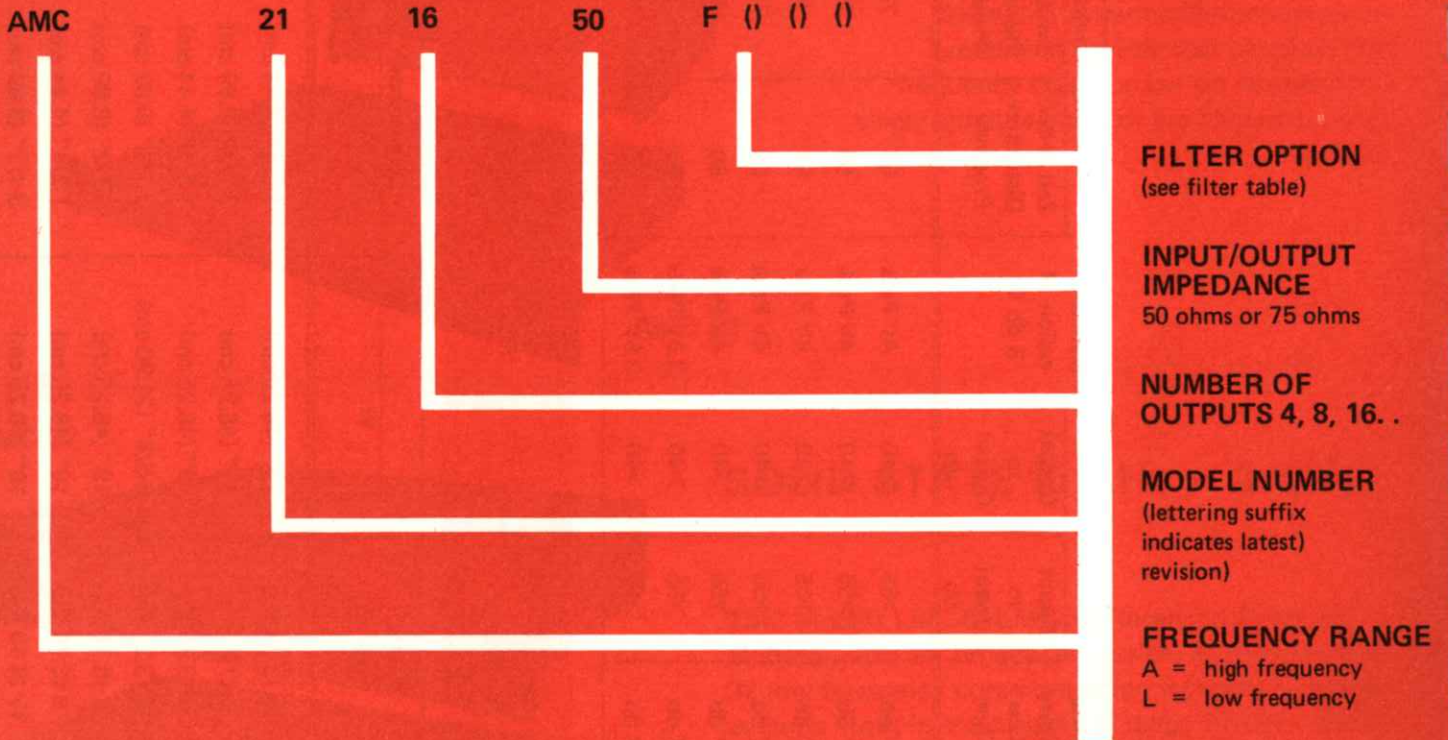
\*This is the usable frequency range. Specifications given are for 2-32 MHz and 10 KHz-2MHz high frequency and low frequency multicouplers' frequency range respectively.

\*\*Distortion product levels are quoted in dB's below the level of either signal of a standard 2 signal test where each signal is measured across the input of the multicoupler and is .5V/RMS for 75 ohm units and .4V/RMS for 50 ohm units.



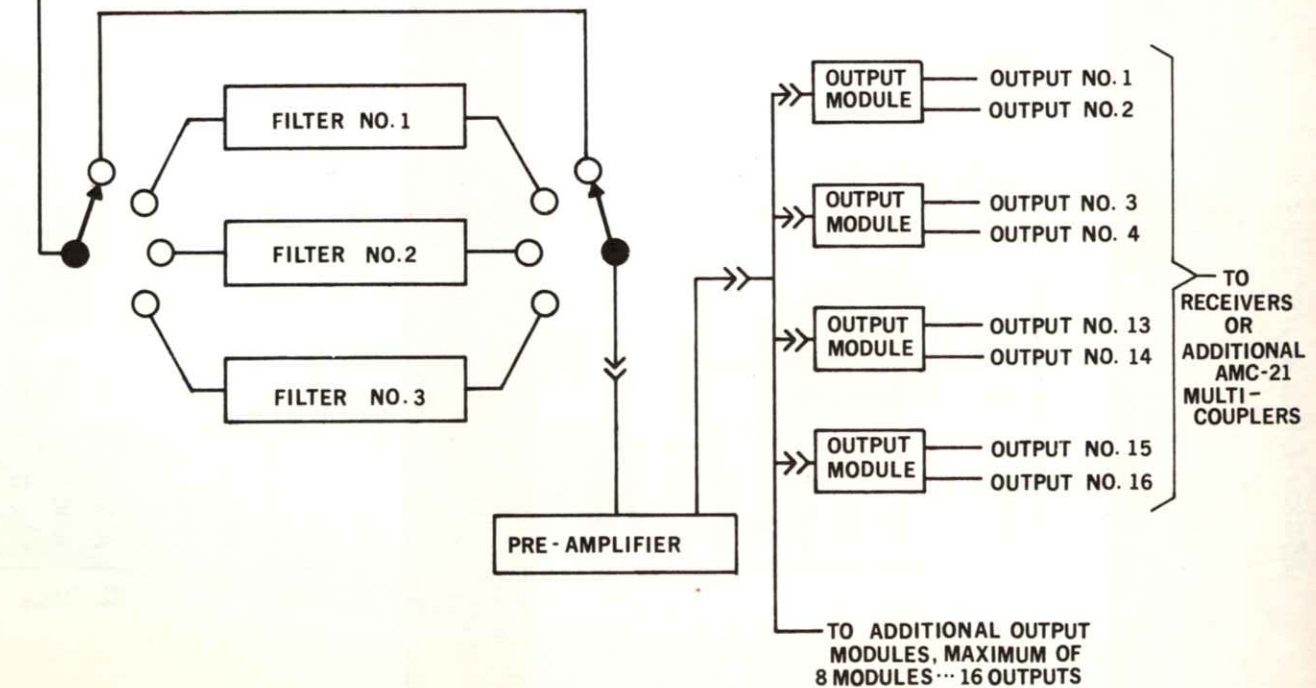
# TMC ANTENNA MULTICOUPLERS IN AMC/LMC SERIES

## ORDERING INFORMATION

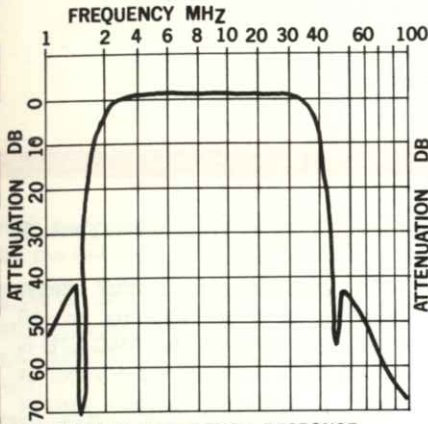


ANTENNA

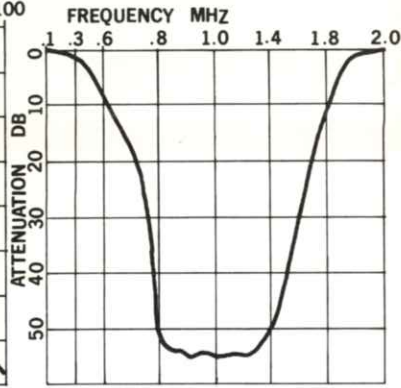
TYPICAL BLOCK DIAGRAM 21B 16 OUTPUTS



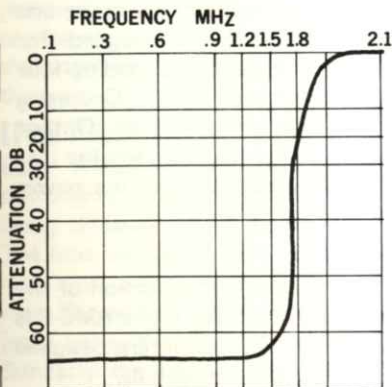
FILTER'S CHARACTERISTICS



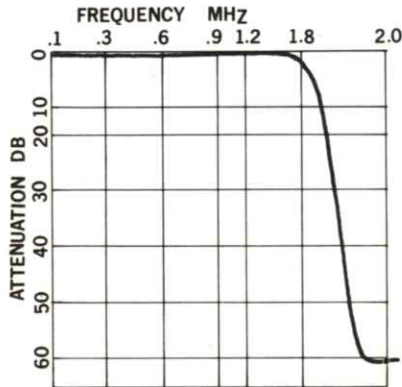
TYPICAL FREQUENCY RESPONSE  
FX10018 , FX10034



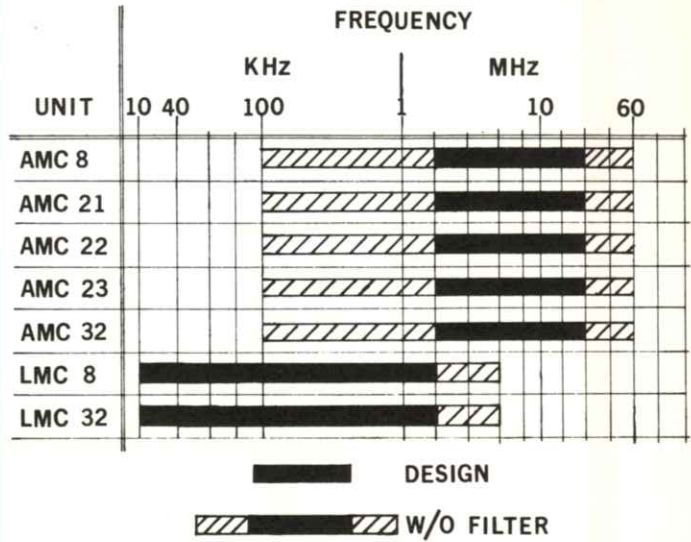
TYPICAL FREQUENCY RESPONSE  
FX10020



TYPICAL FREQUENCY RESPONSE  
FX10021



TYPICAL FREQUENCY RESPONSE  
FX10022



AMC/LMC FILTER TABLE

Code	FILTER TYPE	TMC PART No.	Ohms	FREQUENCY RANGE (NOMINAL)	CONNECTION IN/OUT	PHASE CORRELATION AVAILABLE	AVAILABLE AS STANDARD ITEM						AVAILABLE AS OPTIONAL ITEM								
							AMC-8	AMC-21	AMC-22	AMC-23	AMC-32	LMC-8	LMC-32	AMC-8	AMC-21	AMC-22	AMC-23	AMC-32	LMC-8	LMC-32	
F0	No Filter fitted or filter switched out of circuit							x													
F1	Band Pass	FX10018	75	2-32 MHz	BNC/BNC	Yes	x													x	
F2	Broad-cast stop	FX10020	60		solder	No		x	x	x										x	x
F3	High Pass	FX10021	60	2-32 MHz	solder	No		x	x	x										x	x
F4	Low Pass	FX10022	60	10 KHz-2 MHz	solder	No		x	x	x										x	x
F5	Band Pass	FX10034	50	2-32 MHz	BNC/BNC	Yes	x														x



## GENERAL DESCRIPTION

TMC antenna multicouplers in the AMC/LMC series provide broadband electronic coupling for multiple receivers to a single antenna. Efficient match with minimum inter-modulation and cross modulation are the main design considerations. General description of these multicouplers is given below:

### AMC-8

An eight output antenna multicoupler for operation in the frequency range of 2 - 32 MHz is a broadband antenna-to-receiver coupling device designed and manufactured to military specifications, MIL-E-16-400. It permits the use of a common antenna by eight communication receivers. The circuitry consists of a bandpass filter, a broadband preamplifier, eight individual buffer amplifiers (output module) and a built-in power supply.

The bandpass filter, designed and manufactured to an unusual degree of accuracy provides:

- (1) A phase correlation of  $\pm 1\%$  for sophisticated antenna system.
- (2) Attenuation of the frequencies outside the frequency band.

The preamplifier and the output module have a low noise figure and yet large signal handling capability. They provide:

- (1) Overall gain of +2 db.
- (2) Low intermodulation.
- (3) Constant input and output impedance for a good VSWR over the frequency range.
- (4) High isolation between output to output or output to input.

The power supply supplies the regulated dc supply of -27 volts for operation of the preamplifier and the output module circuits.

The AMC-8 is designed for mounting in a standard 19-inch rack, fastened by four retaining screws on the front panel. The operating controls are located on the front panel. The eight output receptacles are on the rear panel as are the power connections.

### AMC-21B

Antenna multicoupler, Model AMC-21B, is a broadband antenna-to-receiver coupling device which permits the use of a common antenna by a number of communication receivers in the frequency range of 100 KHz to 32 MHz. AMC-21B, consists of a number of optional filters, a broadband preamplifier, variable number of output modules and a built-in power supply.

The AMC-21B may be provided with any, all, or none of its optional filters. The following filters are available:

- (1) Broadcast band stop filter — cuts off all frequencies in the broadcast band.
- (2) High pass filter — cuts off frequencies below 2 MHz.

- (3) Low pass filter — cuts off frequencies above 2 MHz.

The basic AMC-21B provides 16 output stages (channels) for coupling a single antenna to 16 receivers. Inherent in the design of the AMC-21B is the capability of increasing or reducing the number of channels by adding or removing plug-in output modules in the increments of two modules (4 channels), so that units with 4, 8, 12 or 16 outputs are readily available.

The preamplifier, the output module and the power supply are basically identical in function to the one used in the AMC-8. AMC-21B is designed for mounting in a standard 19-inch rack, fastened by four retaining screws on the front panel. Operating controls are located on the front panel. Output modules can be plugged into a pocket from the rear end of the unit. Output receptacles and the power plug are mounted on the rear panel.

### AMC-22

Multicoupler AMC-22 is a commercial version of the AMC-8. High performance filter used in the AMC-8 is replaced by one of the three optional filters, designed for the AMC-21B. See filter table for details.

### AMC-23

Multicoupler AMC-23 is an economy version of the AMC-8 in a 3-1/2" half rack package. This unit is fitted with one of the three standard filters used in the AMC-21B. It is a versatile package for table mounting, but with economical rack mounting options.

### AMC-32

The thirty-two output antenna multicoupler is a broadband distribution system designed to couple a single antenna to the antenna inputs of up to thirty-two HF communication receivers in the frequency range of 2 - 32 MHz. AMC-32, designed and manufactured to the military specifications consists of a preamplifier, 4 output modules and a built-in power supply. There is also a choice of optional filters. See filter table for details.

The preamplifier, output modules and power supply are designed and manufactured to the same specifications as the AMC-8 with a slightly reduced performance due to the large number of outputs. AMC-32 is designed for mounting in a standard 19-inch rack. It is fastened by four retaining screws on the front panel. All operating controls are located on the front panel. An input and thirty-two output receptacles are mounted on the rear panel along with power connections.

### LMC-8

Multicoupler LMC-8 is a low frequency version of the AMC-8 in the frequency range 10 KHz to 2 MHz. The

high performance filter used in the AMC-8 is replaced by the low pass filter used in AMC-21B.

## LMC-32

Multicoupler LMC-32 is a low frequency version of the AMC-32 in the frequency range of 10 KHz to 2 MHz.

## POWER REQUIREMENTS

All antenna multicouplers in the AMC/LMC series designed and manufactured by TMC (Canada) Limited can operate from 115/230 Vac, 48 to 400 Hz power supply. Changeover from 115 Vac to 230 Vac or vice versa can be made by simple modifications of the transformer wiring and by replacing the fuse(s) of the proper value.

## INSTALLATION

Each AMC-LMC antenna multicoupler has been thoroughly tested and calibrated at the factory before being shipped. There are no pre-installation checks. The unit can easily be installed in a standard 19-inch rack with a sufficient clearance in the front and the rear. The antenna should be connected to the output jacks using the coaxial cable of proper impedance. Similarly the receivers should be connected to the output jacks. The unit can then be connected to the proper power source. The only precaution is to insure

that the transformer is wired for the available power supply and fuse(s) are of the correct value.

## OPERATION

Operation is simple and straight-forward. Once the unit is properly installed, it can be operated by simply switching on the power switch. Antenna multicouplers in the AMC-21B series also require the selection of the appropriate filter switch position.

## CASCADING

Solid state design has reduced the heat problems allowing the installation of several multicouplers, one above the other in the same rack. However, for the requirements of cascading more than 5 multicouplers, TMC (Canada) Limited will advise on the method of forced air cooling.

## MAINTENANCE

The TMC antenna multicouplers are manufactured to provide long term service under severe environmental conditions. Design factors are conservative and the components used are of the best quality, assembled with complete craftsmanship and perfection. TMC (Canada) Limited offers the complete field services supported by up-to-date test equipment and spare parts.

## AMC/LMC SERIES MAJOR ASSEMBLIES

(RECOMMENDED FIELD SUPPORT ITEMS)

Basic Model	Ohms	Regulator Voltage		Output Module						Preamplifier Board						Filters					Lightning Protection	Remarks
		A-10746-5	A-10746-6	AX-10055	AX-10056	A-10714-5	A-10714-6	A-10791-5	A-10791-6	A-10735-5	A-10735-6	A-10757-5	A-10757-6	A-10812-5	A-10812-6	FX-10018	FX-10020	FX-10021	FX-10022	FX-10034		
AMC-8	75 50	1 1			1			1		1					1						A-10859	
AMC-21	75 50		1 1	8					1							1	1	1			1	16 output 16 output
AMC-22	75 50	1 1			1				1							0	0	0				
AMC-23	75 50	1 1			1				1							0	0	0			1	0=optional
AMC-32	75 50	1 1			4					1						0	0	0				
LMC-8	75 50	1 1						1										1				
LMC-32	75 50	1 1						4						1				0				

## SOME PERTINENT FACTS ABOUT TMC (CANADA) LIMITED

TMC (Canada) Limited was founded in September 1950 with offices and manufacturing plant facilities located in Ottawa, Ontario. Steady and controlled progress resulted in the Company's construction of a modern manufacturing plant on the River Road adjacent to the Uplands Airport. TMC (Canada) Limited develops and produces high frequency communication equipment.

TMC (Canada) Limited has constantly employed an efficient, alert and industrious administrative and field engineering staff, which keeps abreast of current management practices and electronic "state-of-the-art" developments.

In addition to developing the products described in this brochure, TMC (Canada) Limited has demonstrated its capabilities in many fields of communication engineering.

Engineering areas include Receivers, Transmitters, all ancillary equipment and antennas in the VLF through HF frequencies, at low through very high power and in all modes of transmission and reception.

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