

# MAXNET® II

## Platinum Series



Patented  
U.S.# 7,142,414

MP3BAS 3RU Active Chassis  
(front view)

### Ultra-Dense RF & Optical Active Modules Combiners

#### MPSA8x2

- Active 8-way combiner with 2-way output splitter intended for status monitoring port
- Overcome excessive losses in narrowcast network due to node splits and passive losses
- Up to 20 MPSA8x2s will fit into a single 3RU MAXNET® II Ultra-dense Active Chassis (MP3BAS)  
NOTE: Ultra-dense active modules not compatible with standard MAXNET II active chassis
- Front access -20 dB combiner test point
- Front access to plug-in locations for pads/EQs
- High performance MCX connector receptacles
- 50-1002 MHz operation

D3.1/CCAP™  
Compliant

- Optimized RF performance
- Module voltage, current, temperature, nominal RF output power and RF output alarm threshold are easily monitored and controlled over the network (HMS compliant SNMP v2c) or through a web browser; email alarm notification is also supported
- Unit ships with 5 dB input pads for maximum isolation (typ > 40 dB). If cable losses at input are already high, these should be replaced with 0 dB pads for maximum gain and best noise figure

#### Specifications

##### Combiner (50-1002 MHz)

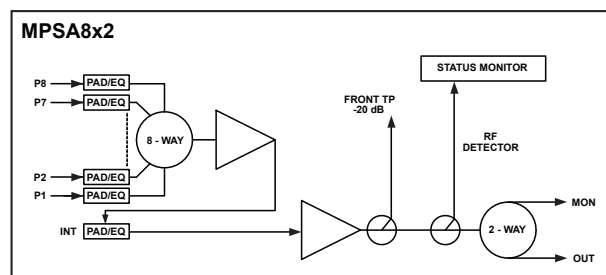
	MPSA8x2
<b>GAIN<sup>(1)</sup></b>	-3 dB +/- 0.5 dB
<b>INPUT RETURN LOSS</b>	> 20 dB
<b>OUTPUT RETURN LOSS</b>	> 18 dB
<b>INPUT ISOLATION<sup>(1)</sup></b>	> 38 dB
<b>OUTPUT ISOLATION</b>	> 24 dB
<b>TEST POINT LOSS</b>	20 dB +/- 1 dB
<b>COMP. TR. BT.<sup>(2)</sup></b>	< -68 dB
<b>COMP. 2nd ORD.<sup>(2)</sup></b>	< -80 dB
<b>NOISE FIGURE<sup>(3)</sup></b>	< 8 dB (< 25 dB)
<b>OPERATING CURRENT<sup>(4)</sup></b>	130mA
<b>OPERATING TEMPERATURE</b>	0°C to +50°C (+32°F to +122°F)
<b>HUMIDITY</b>	5-95% (without condensation)
<b>DIMENSIONS</b>	4.9"H x 0.69"W x 9.4"D (12.45H x 1.75W x 23.88D cm)
<b>WEIGHT</b>	1.87 lbs (0.85 kg)

#### NOTES:

- (1) As measured with 5 dB pads at each input port.
- (2) Output levels of 23 dBmV/channel, 79 CW NTSC analog channels from 54-550 MHz with 450 MHz QAM loading 6 dB below analog carrier levels.
- (3) This is the noise figure of the gain stage only. Like any active combiner, must add input pad value (5 dB) and 8-way combiner loss (12 dB), yielding typical net noise figure of < 25 dB.
- (4) DC load current at +24 VDC.

#### OTHER NOTES:

Minimum/maximum composite RF detection level in software is 20.5/80 dBmV.



Functional Schematic

# MPSABCNC

- Active 8-way combiner with 2-way combiner for passive BC input intended to be used before optical transmitters without dedicated narrowcast port
- Overcome excessive losses in narrowcast network due to node splits and passive losses
- Up to 20 MPSABCNCs will fit into a single 3RU MAXNET II Ultra-dense Active Chassis (MP3BAS)  
NOTE: Ultra-dense active modules not compatible with standard MAXNET II active chassis
- Front access -20 dB combiner test point (12 dB test point option available, consult ATX)
- Front access to plug-in locations for pads/EQs

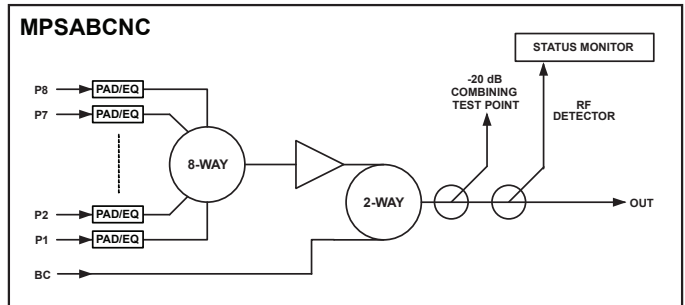
- High performance MCX connector receptacles
- 50-1002 MHz operation
- Optimized RF performance
- Module voltage, current, temperature, nominal RF output power and RF output alarm threshold are easily monitored and controlled over the network (HMS compliant SNMP v2c) or through a web browser; email alarm notification is also supported
- Unit ships with 5 dB input pads for maximum isolation (typ > 40 dB). If cable losses at input are already high, these should be replaced with 0 dB pads for maximum gain and best noise figure

## Specifications

Combiner (50-1002 MHz)		MPSABCNC
GAIN <sup>(1)</sup>	BC	-4/-6 dB at 50/1002 MHz (non-EQ'd)
	NC	-3 dB (flat)
	DEVIATION FROM LINEAR	+/- 0.5 dB
INPUT RETURN LOSS		> 18 dB
OUTPUT RETURN LOSS		> 16 dB
ISOLATION <sup>(1)</sup>	NC -> NC	Typical > 38 dB, Min > 35 dB
	BC -> NC	> 35 dB
	NC -> BC (50-750 MHz)	> 28 dB
	NC -> BC (750-1002 MHz)	> 25 dB
TEST POINT LOSS		20 dB +/- 1 dB
COMP. TR. BT. <sup>(2)</sup>		< -68 dB
COMP. 2nd ORD. <sup>(2)</sup>		< -80 dB
NC NOISE FIGURE <sup>(3)</sup>		< 8 dB (< 25 dB)
OPERATING CURRENT <sup>(4)</sup>		130mA
OPERATING TEMPERATURE		0°C to +50°C (+32°F to +122°F)
HUMIDITY		5-95% (without condensation)
DIMENSIONS		4.9"H x 0.69"W x 9.4"D (12.45H x 1.75W x 23.88D cm)
WEIGHT		1.87 lbs (0.85 kg)

NOTES:  
 (1) As measured with 5 dB pads installed at each NC input port.  
 (2) Output levels of 23 dBmV/channel, 79 CW NTSC analog channels from 54-550 MHz with 450 MHz QAM loading 6 dB below analog carrier levels.  
 (3) This is the noise figure of the gain stage only. Like any active combiner, must add input pad value (5 dB) and 8-way combiner loss (12 dB), yielding typical net noise figure of < 25 dB.  
 (4) DC load current at +24 VDC.

OTHER NOTES:  
 Note that NC to BC measured goes through a gain stage, so measurement appears high.  
 Minimum/maximum composite RF detection level in software is 20.5/80 dBmV.



Functional Schematic

## Forward Amplifier

### MPSA2-12

- Dual 12 dB gain amplifier package rated for up to 30 dBmV at output with full 50-1000 MHz analog/digital channel load  
NOTE: Higher output capable with less channel load
- Overcome excessive losses in narrowcast network due to node splits and passive losses
- Up to 20 MPSA2-12s will fit into a single 3RU MAXNET II Ultra-dense Active Chassis (MP3BAS)  
NOTE: Ultra-dense active modules not compatible with standard MAXNET II active chassis
- Front access to plug-in locations for input and output pads/EQs
- High performance MCX connector receptacles
- 50-1002 MHz operation
- Optimized RF performance
- Module voltage, current, temperature, nominal RF output power and RF output alarm threshold are easily monitored and controlled over the network (HMS compliant SNMP v2c) or through a web browser; email alarm notification is also supported

## Specifications

### Forward Amplifier

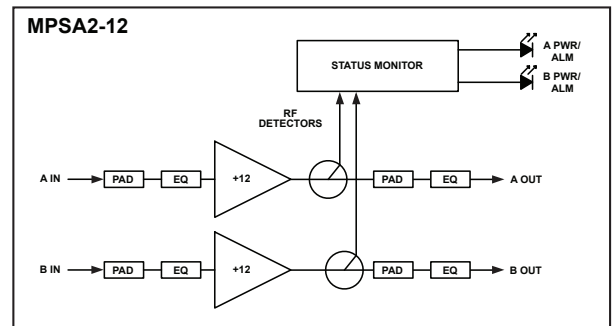
		MPSA2-12	
MEASUREMENT	FREQUENCY	QA	
GAIN	50-550 MHz	12.5 dB +/- 1 dB	
	550-860 MHz	12 dB +/- 1 dB	
	860-1002 MHz	11.5 dB +/- 1 dB	
RETURN LOSS	50-1002 MHz	≥ 18 dB	
NOISE FIGURE <sup>(1)</sup>	50-1002 MHz	6 dB	
INPUT CURRENT	DC	130mA (24 VDC)	
POWER CONSUMPTION	DC	3.1W	
DEVICE-TO-DEVICE ISOLATION	50-1002 MHz	> 75 dB	
<b>ANALOG PERFORMANCE</b>	<b>MIXED CHANNEL LOAD<sup>(2)</sup></b>	<b>MOSTLY DIGITAL<sup>(3)</sup></b>	
REF OUTPUT/CW	30 dBmV	41 dBmV	
COMP. TR. BT.	< -68 dB	< -70 dB	
COMP. 2nd ORD.	< -72 dB	< -70 dB	
<b>DIGITAL PERFORMANCE</b>	<b>MIXED CHANNEL LOAD<sup>(2)</sup></b>	<b>MOSTLY DIGITAL<sup>(3)</sup></b>	
REF OUTPUT/QAM 256	24 dBmV	35 dBmV	
MER BEFORE/AFTER AMP	37 dB / 37 dB	37 dB / 37 dB	
BER BEFORE/AFTER AMP <sup>(4)</sup>	0/0	0/0	
<b>OTHER</b>			
OPERATING TEMPERATURE	0°C to +50°C (+32°F to +122°F)		
HUMIDITY	5-95% (without condensation)		
DIMENSIONS	4.9"H x 0.69"W x 9.4"D (12.45H x 1.75W x 23.88D cm)		
WEIGHT	1.87 lbs (0.85 kg)		

#### NOTES:

- (1) Specified with 0 dB plug-in attenuator.
- (2) 79 analog CWs at REF output from 54-550 MHz with 550-870 MHz QAM 256 at -6 dB relative to CW.
- (3) Four analog CWs at REF output with 96 QAM 256 channels up to 1002 MHz at -6 dB relative to CW.
- (4) Pre-FEC BER. Results show no detectable bit errors if operated within recommended range.

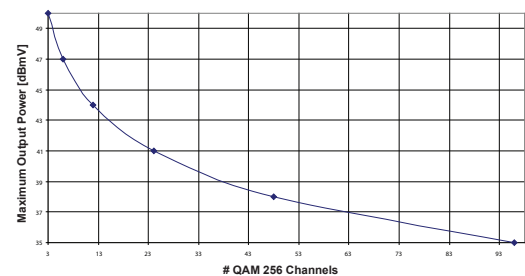
#### OTHER NOTES:

Minimum/maximum composite RF detection level in software is 20.5/80 dBmV.



Functional Schematic

MPSA2-12, QAM NC Amplifier Rating



## Chassis

### MP3BAS

- Rugged 3RU design
- Can accommodate up to two power supplies that will work redundantly, as well as up to 20 single-width active modules or MAXNET II passive modules
- Same cable management options as available with MP3\*A chassis series
- Modules push and lock into chassis; no mounting hardware necessary
- Chassis can be powered from 110 VAC, 220 VAC or -48 VDC plug-in power supply modules or remotely via the rear access 24 VDC A and B (redundant) terminal block
- Ultra-dense Active Chassis is provisioned to accommodate set-up, monitoring and control for modules and chassis over the network (HMS compliant (SNMP v2c)) or through a web browser; email alarm notification is also supported

**ATX recommends leaving a 1RU air gap between each active chassis.**



#### 3RU Chassis Dimensions

5.25"H x 19.0"W x 14.75"D (13.34H x 48.26W x 37.47D cm)  
(without cable management)

## Ordering Information

Part Number	Description
MPSA8x2	Active 8-way Combiner with 2-way Output
MPSABCNC	Active 8-way Combiner with Passive Broadcast Insertion Port
MPSA2-12	Dual 12 dB Gain Forward Amplifier
MP3BAS	Active 3RU Chassis with Dual Cable Management Bar for Ultra-dense Actives

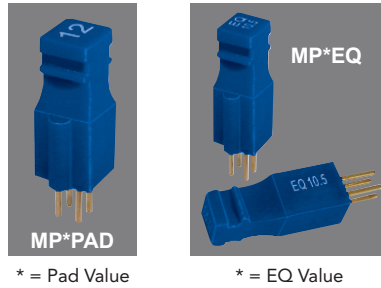
### Also in the same Ultra-dense Active series:

MPSRX-8 Return Path Receiver

see MAXNET II Ultra-dense RF & Optical Active Modules data sheet (#ANW0878)

## Plug-in Pads/EQs

- Pads and EQs can be easily inserted or removed with fingertips or by using the pad tool (pad tool part # MPPT, see MAXNET II MCX to F & BNC Adapters data sheet)
- Plug-in pads are available from 0-20 dB in 1 dB increments, 16-20 dB recommended for return band only



## Ordering Information

Part Number	Description
MP*PAD	Plug-in Pad, 1218 MHz (* = dB value, 0-20 dB) (must order in quantities of 10)
MP*EQ	Plug-in EQ, 1000 MHz (* = dB value, 1.5-10.5 dB) (must order in quantities of 10)

For Pad/EQ specifications,  
see MAXNET II MCX to F & BNC Adapters data sheet (#ANW0618)

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Rev. 10/19 (ANW0805)



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