

## Model 402, 8 x 8 Butler Matrix

The model 402 is an eight antenna element to eight mode Butler Matrix modeforming network. The matrix generates modes 0,+1,-1,+2,-2,+3,-3 and +4. The unit is not hermetically sealed and is intended for sheltered environments.

### Electrical

Frequency Range	200 to 2000 MHz
Insertion Loss	3.5 dB (0.2 GHz) 6.5 dB (2 GHz)
Amplitude Unbalance (Error)	+/- 1.0 dB max. (0.2-1 GHz) +/- 1.5 dB max. (1-2 GHz)
Phase Unbalance (Error)	+/- 10 degrees max (0.2-1 GHz) +/- 16 degrees max. (1-2 GHz)
Return Loss	-14 dB max.
Power Handling	2 watts max.

### Mechanical

Size	18" x 18" x 3"
RF Connectors	SMA female

### Environmental

Temperature Range	+0 to +70 C
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### Phase Distribution

<u>Input</u>	<b>Mode</b>							
	<u>0</u>	<u>+1</u>	<u>+2</u>	<u>+3</u>	<u>4</u>	<u>-3</u>	<u>-2</u>	<u>-1</u>
<b>1</b>	0	-135	180	180	0	+45	0	0
<b>2</b>	0	180	+90	+45	180	180	+90	+45
<b>3</b>	0	+135	0	-90	0	-45	180	+90
<b>4</b>	0	+90	-90	+135	180	+90	-90	+135
<b>5</b>	0	+45	180	0	0	-135	0	180
<b>6</b>	0	0	+90	-135	180	0	+90	-135
<b>7</b>	0	-45	0	+90	0	+135	180	-90
<b>8</b>	0	-90	-90	-45	180	-90	-90	-45

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