



## PRODUCT DESCRIPTION:

The DF-A0052 is a high-speed, 3-band, 5- to 3-channel commutating switch intended for switched elements direction finding applications. The switch accepts three frequency bands, each with 5 antenna elements, and routes any 3 elements of a selected band of 5 elements to any of the 3 outputs. The switch is designed to be mounted internally within the weatherproof cavity of the DF-A0029, DF-A0031 and DF-A0037 direction finding antennas.

The switch comprises 5 parallel channels, each equipped with input power limiters, ESD protection, low noise amplifier and band switch. A “calibration band” can also be selected, providing a balanced 5-way split of an internally generated or externally supplied calibration signal, for chain and receiver calibration. Each channel features a low-noise amplifier, within the calibration chain, to help overcome switch and cable loss. The switch accepts a very wide input voltage range and is controlled via hardwired logic lines or an EIA-485 (RS-485) interface. All switching is solid state for rapid commutation and unlimited switching cycles.

## PRODUCT FEATURES:

- 3-band, 5- to 3-channel commutating switch
- Low noise amplifier on each channel
- Wideband internal noise source for chain calibration
- External injection mode for chain calibration
- High-speed solid state switching
- Limiter and ESD protection on each input in order to allow operation in adverse EM environments

## APPLICATIONS:

- DF band switching for Alaris' range of DF antennas, particularly, the DF-A0029, DF-A0031 and DF-A0037

## SPECIFICATIONS:

<b>Electrical: DF chain</b>		
Frequency range	1 – 3600 MHz	
Frequency bands	Band A: 1 – 500 MHz	
	Band B: 100 – 2000 MHz	
	Band C: 500 – 3600 MHz	
Input VSWR	< 2.5:1	
Gain (typical)	100 MHz	10 ± 0.5 dB
	1000 MHz	13 ± 1 dB
	3000 MHz	15 ± 2 dB
Noise figure	< 10 dB	
OIP3 (typical)	< 1000 MHz	30 dBm
	>1000 MHz	27 dBm
Maximum input level	30 dBm CW, 45 dBm at 1% duty factor in 1µs pulse	
Input connectors	SMA female	
Output connectors	SMA female	
<b>Electrical: CAL chain</b>		
Amplitude imbalance	< 3 dB	
Phase imbalance	< 25°	
Gain (typical)	100 MHz	-10 ± 2 dB
	1000 MHz	-8 ± 2 dB
	3000 MHz	-10 ± 3 dB
Max input level	20 dBm	
Internal noise source output level	+35 to +60 dB ENR	
Input connector	SMA female	
<b>Power and control:</b>		
Power supply	19 – 36 V DC, 1 A	
Control interface	EIA-485 (RS-485), hardwired lines	
Total switching time	< 150 µS	
Time to receive control byte (RS-485, 115.2 kbps)	< 100 µS	
Total switching time	< 150 µS	
External strobe latency	< 5 µS	
<b>Mechanical:</b>		
Dimensions	317 mm x 168 mm x 80 mm	
Total mass	< 4 kg	
External material	Aluminium	
<b>Environmental: designed to meet the following specifications</b>		
Temperature range	-20 °C to +70 °C	
Vibration	0.02 g <sup>2</sup> /Hz, 2 – 300 Hz	
Shock	40 G for 10 ms	
Thermal shock	-20 °C to +70 °C	
Water ingress rating	IP54	

N.B: The actual product will have seven connectors less than the image represented in this brochure.