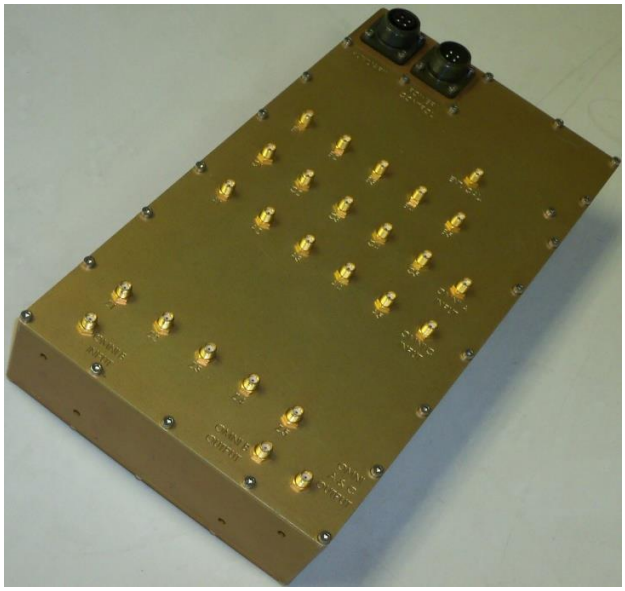
High-Speed DF Antenna Commutating Switch

1 – 3600 MHz

Product Code: DF-A0052

VERSION: 1.3



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:

Electrical: DF chain		
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
Electrical: CAL chain		
Amplitude imbalance		< 3 dB
Phase imbalance		< 25º
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
Power and control:		
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
Mechanical:		
Dimensions		317 mm x 168 mm x 80 mm
Total mass		< 4 kg
External material		Aluminium
Environmental: designed to meet the following specifications		
Temperature range		-20 ºC to +70 ºC
Vibration		0.02 g²/Hz, 2 – 300 Hz
Shock		40 G for 10 ms
Thermal shock		-20 ºC to +70 ºC
Water ingress rating		IP54

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